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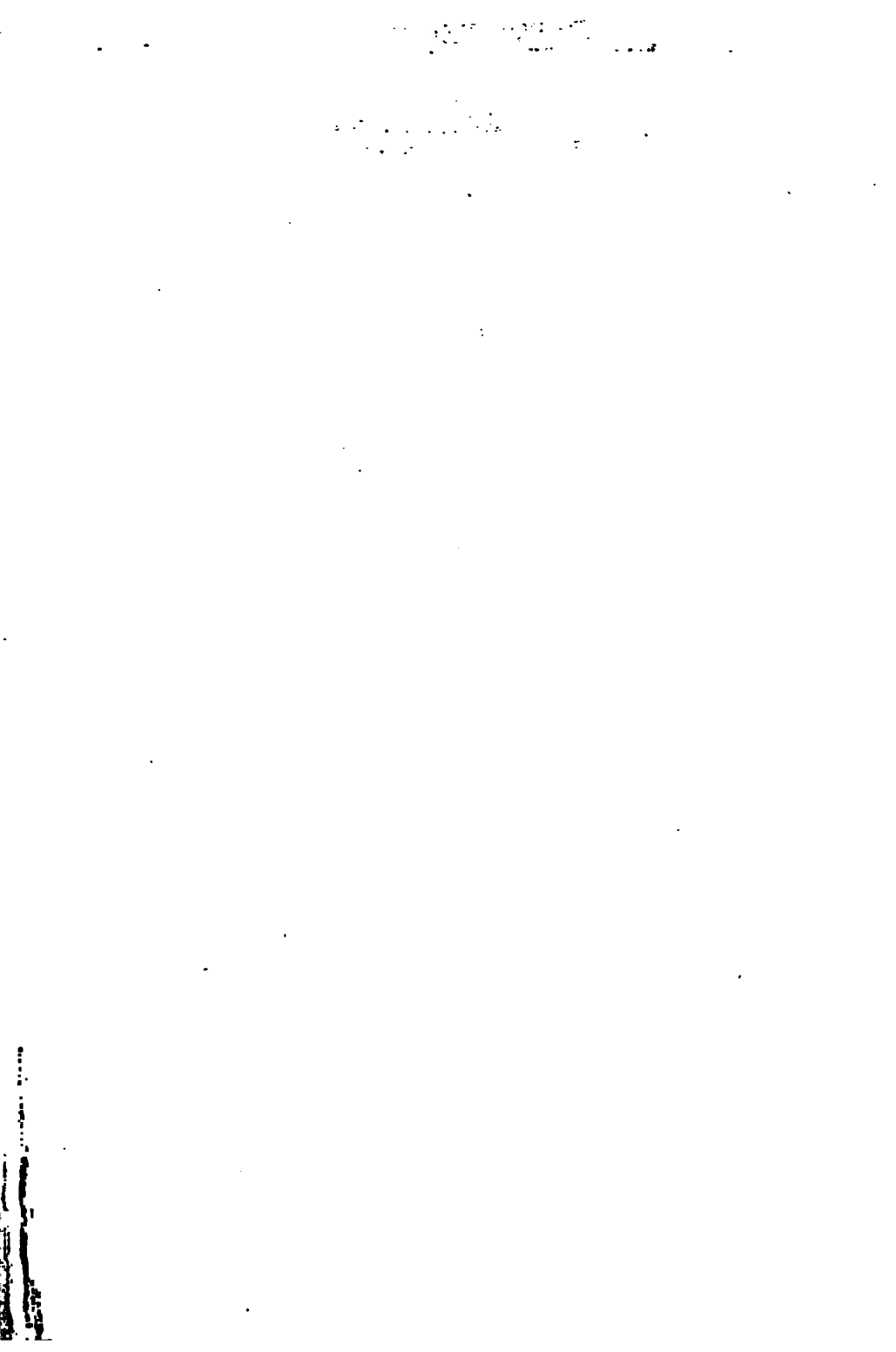


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THE PRACTITIONER



THE PRACTITIONER

A JOURNAL

OF

THERAPEUTICS AND PUBLIC HEALTH

EDITED BY

T. LAUDER BRUNTON, M.D., LL.D., F.R.C.P., F.R.S.

*Assistant Physician and Lecturer on Materia Medica and Therapeutics at
St. Bartholomew's Hospital, London*

DONALD MAC ALISTER, M.A., M.D., B.Sc., F.R.C.P.

*Fellow and Tutor of St. John's College; Physician to Addenbrooke's Hospital;
and Linacre Lecturer in Physic, Cambridge*

AND

J. MITCHELL BRUCE, M.A., M.D., F.R.C.P.

*Physician and Lecturer on Practice of Medicine and Therapeutics at
Charing Cross Hospital, London*

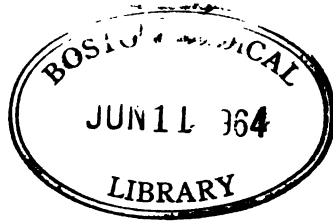
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CLOSE OF THE PRESENT SERIES OF
THE PRACTITIONER.

THE EDITORS have to inform their readers that with the current number the present series of *The Practitioner* will come to an end. The Journal will in future be published in a somewhat different form by Messrs. CASSELL AND CO., LIMITED. In the course of the next few days a Prospectus setting forth the principal features of the New Series will be issued to the subscribers and others by Mr. MALCOLM MORRIS, who will assume the Editorship. In laying down their office the Editors desire to return their cordial thanks to all who have aided them in the conduct of *The Practitioner*, and to bespeak the support of the profession for their successor.

CONTENTS OF VOL. LIII.

ORIGINAL COMMUNICATIONS :—

	PAGE
The Antipyretic Treatment of Acute Disease. By Thomas F. Raven, M.R.C.S., L.R.C.P.	1
Chloralose. By Charles Flemming, M.R.C.S.	8
On the Disinfection of Scarlet Fever Patients before the Completion of Desquamation. By William Gibson, M.D. Edin.	14
The Operative Treatment of Ruptured Urethra. By Edward Deanesly, M.D., B.Sc. Lond., F.R.C.S. Eng.	17
The Early Myelogenic Features of Leucocythæmia. By M. A. Boyd, M.D.	81
Note on the Use of Ferratin in Cases of Anæmia. By John Harold, L.R.C.P. Lond., M.R.C.S. Eng.	87
The Practical Outcome of Recent Researches on Cancer. By Herbert Snow, M.D. Lond., &c.	92
Cases of Myxœdema Treated by Thyroid Gland. By John Harold, L.R.C.P. Lond., M.R.C.S. Eng.	100
Mechano-Therapy in Chronic Diseases of the Heart. By A. Symons Eccles, M.B.	106
<i>Cactus Grandiflorus</i> : its Literature, Composition, Pharmacology, and Therapeutics. By Gordon Sharp, M.B. Edin.	161
Notes on the Treatment of Strangulated Hernia. By G. E. Wherry, M.C. Camb., F.R.C.S.	179
Some Points in the Prognosis and Treatment of Croupous Pneumonia. By Percy Kidd, M.D., F.R.C.P.	183
On Tropical Dysentery. By Surgeon-General Sir Joseph Fayrer, K.C.S.I., LL.D., M.D., F.R.S.	241, 321, 401
The Morbid Anatomy of the Lungs after Influenza. By Louis B. Hayne, B.A., M.B., B.C. Cantab.	256
On Cases of Infantile Diarrhœa Complicated by Acute Nephritis. By Robert Turner, M.A., M.B., C.M. Aberd.	263
Piperazina and other Eliminants in the Treatment and Prevention of Gout. By E. D. Mapother, M.D., F.R.C.S.I.	265
The Drug Treatment of Phthisis. By Frederic C. Coley, M.D.	271
Two Cases of Friedreich's Ataxy. By James Taylor, M.A., M.D., M.R.C.P.	335
Chloride of Calcium in Pneumonia. By D. M. Moir, M.A., M.B.	343

	PAGE
On the Evil Effects of Constipation upon Myopic Eyes. By George Wherry, M.A., M.C. Cantab.	350
On the <i>Ætiology</i> of the so-called Scurvy-Rickets. By Henry Ashby, M.D., F.R.C.P.	412
Chronic Lacunar Tonsillitis. By James B. Ball, M.D., M.R.C.P.	418
Practical Points in the Treatment of Venereal Diseases. By Robert Turner, M.A., M.B., C.M. Aberdeen.	426
Two Cases of Multiple Naso-Pharyngeal Polypi. By A. Marmaduke Sheild, M.B., F.R.C.S.	429
A Note on "Indigestion." By F. Orton, M.D.	434

REVIEWS OF BOOKS :—

Medicated Baths in the Treatment of Skin Diseases. By Leslie Phillips, M.D.	24
The Physiologist's Note-Book : A Summary of the Present State of Physiological Science. For the use of Students. By Alex Hill, M.A., M.D., Master of Downing College, Cambridge	24
Difficult Labour : A Guide to its Management. For Students and Practitioners. By G. Ernest Herman, M.B. Lond., F.R.C.P., Senior Obstetric Physician to the London Hospital	25
Grundriss der klinischen Bakteriologie für Aertze und Studirende. [Elements of Clinical Bacteriology for Practitioners and Students.] Von Dr. Felix Klemperer and Dr. Ernst Levy, Privatdocenten an der Universität Strassburg-i.-E.	26
A Manual of Medical Treatment, or Clinical Therapeutics. By I. Burney Yeo, M.D., F.R.C.P., Professor of Clinical Therapeutics in King's College, London, and Physician to King's College Hospital	27
Lectures on Auto-Intoxication in Disease—or Self-Poisoning of the Individual. By Charles Bouchard, Professor of Pathology and Therapeutics, Member of the Academy of Medicine, and Physician to the Hospitals of Paris. Translated, with a Preface, by Thomas Oliver, M.A., M.D., F.R.C.P., Professor of Physiology, University of Durham, &c.	116
Hydatid Disease. Vol. II. By the late John Davies Thomas, M.D. Lond., F.R.C.S. Eng. Edited and arranged by Alfred Austin London, M.D. Lond.	117
On Common Neuroses ; or, The Neurotic Element in Disease, and its Rational Treatment. By James F. Goodhart, M.D., F.R.C.P.	118
Spinal Caries (Spondylitis, or Inflammatory Disease of the Spinal Column). By Noble Smith, F.R.C.S. Edin., L.R.C.P. Lond., Surgeon to the City Orthopædic Hospital	118
The Sanitary Inspector's Handbook. By Albert Taylor, Associate of the Sanitary Institute, Chief Sanitary Inspector to the Vestry of St. George's, Hanover Square	119
A Catechism of Hygiene and Sanitary Science. In Fifteen Parts. By Patrick Hehir, M.D., F.R.S.E. Part I. "Water."	120
A Dictionary of Medicine, including General Pathology, General	

	PAGE
Therapeutics, Hygiene, and the Diseases of Women and Children. By Various Writers. Edited by Richard Quain, Bart., M.D. Lond., LL.D. Ed., F.R.S., President of the General Council of Medical Education; assisted by Frederick Thomas Roberts, M.D., B.Sc. Lond., F.R.C.P., and J. Mitchell Bruce, M.A. Aberd., M.D. Lond., F.R.C.P.	194
Text Book of Abdominal Surgery: A Clinical Manual for Practitioners and Students. By Skene Keith, F.R.C.S. Ed., assisted by George E. Keith, M.B., C.M.	199
Diseases of the Nose and Throat. By F. De Havilland Hall, M.D., F.R.C.P., Physician to Out-patients, and to the Throat Depart- ment, Westminster Hospital	202
Lunatic Asylums: their Organisation and Management. By Charles Mercier, M.B., late Senior Assistant Medical Officer at Leavesden Asylum, &c.	203
Transactions of the Association of American Physicians. Eighth Session. Vol. VIII.	204
The Student's Handbook of Medicine and Therapeutics. By Alexander Wheeler, L.R.C.P. Edin.	204
On Seborrhœa and its Consequences. By Joseph Frank Payne, M.D., F.R.C.P.	279
Micro-organisms in Water: their Significance, Identification, and Removal. By Percy Frankland, Ph.D., B.Sc. Lond., F.R.S., and Mrs. Percy Frankland	279
The Johns Hopkins Hospital Reports. Vol. IV., No. 1. Report on Typhoid Fever	281
Notes on Nursing in Eye Diseases. By C. S. Jeaffreson, M.D., F.R.C.S.E.	283
Post-Nasal Growths. By Charles A. Parker, Assistant Surgeon to the Hospital for Diseases of the Throat, Golden Square	285
The Ophthalmoscope: A Manual for Students. By Gustavus Hart- ridge, F.R.C.S., Surgeon to the Royal Westminster Ophthalmic Hospital	356
The Pharmacopœia of the Hospital for Diseases of the Throat (Golden Square). Fifth Edition. Edited by F. G. Harvey, F.R.C.S. Ed., Surgeon to the Hospital	356
Refraction of the Eye: its Diagnosis, and the Correction of its Errors. By A. Stanford Morton, M.B., F.R.C.S. Eng., Assistant Surgeon to the Moorfields Ophthalmic Hospital, &c.	357
A Handbook of Diseases of the Nose and Pharynx. By James B. Ball, M.D. Lond., M.R.C.P., Physician to the Department for Diseases of the Throat and Nose at, and Physician to, the West London Hospital.	357
On Diseases of the Lungs and Pleuræ, including Consumption. By R. Douglas Powell, M.D. Lond., F.R.C.P., Physician to the Middlesex Hospital	358
Diseases of the Skin: An Outline of the Principles and Practice of Dermatology. By Malcolm Morris, Surgeon to the Skin Depart- ment, St. Mary's Hospital, London	358

	PAGE
Myxœdema, Cretinism, and the Göttes : With some of their Relations. By Edward T. Blake, M.D., M.R.C.S.	437
Directions for Laboratory Work in Bacteriology. By Fredk. G. Nory, Sc.D., M.D., Junior Professor of Hygiene and Physiological Chemistry, Michigan.	438
Edinburgh Hospital Reports. Edited by G. A. Gibson, M.D., D.Sc. ; C. W. Cathcart, M.A., M.B. ; John Thomson, M.D. ; and D. Berry Hart, M.D.	438
Lunacy Law for Medical Men. By Charles Mercier, M.B., Lecturer on Neurology and Insanity, Westminster Hospital Medical School . . .	439
A Treatise on Diseases of the Skin, with special reference to their Diagnosis and Treatment : including an analysis of 12,000 conse- cutive cases. By T. McCall Anderson, M.D., Professor of Clinical Medicine in the University of Glasgow.	440

CLINIC OF THE SIX MONTHS :—

Hæmorrhagic Diathesis ; Abdominal Section ; Recovery	30
Paroxysmal Hæmoglobinuria	31
Tumour of the Pancreas	31
Acanthosis Nigricans	32
Strychnine Poisoning followed by Acute Ascending Paralysis . . .	33
Cystic Sarcoma of the Uterine Mucosa	34
Colchicum Poisoning	34
Chronic Arsenical Poisoning	35
Mycosis Fungoides	35
Variola and Varicella	36
Death after Injection of Cocaine into the Urethra	37
Cyst of the Cerebellum	37
Treatment of Hepatic Colic complicated with Pregnancy	37
Suppurative Otitis Media : Carotid Aneurysm	38
Iritis and Erysipelas	38
Laparotomy for Tubal Pregnancy	38
Cancerum Oris in Typhoid Fever	39
Pulmonary Sequestrum in Phthisis	39
Complicated Case of Jacksonian Epilepsy	40
Bone Marrow in the Treatment of Pernicious Anæmia	40
Double Primary Cancer	41
Pernicious Anæmia in Youth	121
Treatment of Malignant Pustule	121
Permanganate of Potassium in Opium Poisoning	122
Gastroectasis and Enteroptosis	122
Non-Hereditary Friedreich's Disease	123
Post-Roseolar Disseminated Sclerosis	123
Ovarian Cyst following Electrical Treatment	125
Thyroidectomy for Graves' Disease	206
Gonorrhœal Endocarditis	207
Tuberculous Disease of the Mouth	207
Quinine Amaurosis	208

	PAGE
Secondary Trephining for Fracture of the Skull	209
Fibromyoma of the Bladder	209
Curare in Epilepsy	210
Lesion in the Temporo-Sphenoidal Region, with Aphasia	211
Rupture of Membrana Tympani	211
Hydatid of the Brain.	286
Glycosuria from Thyroid Feeding	286
Sulphocarbolates in Purpura	287
Supra- and Sub- diaphragmatic Abscess	288
Taches Bleuâtres	289
Intestinal Obstruction from Chronic Appendicitis	289
Paralysis Agitans sine Agitatione	290
Bromide Eruption	290
Cysticercus of the Skin	290
Palatal Ulceration in Tabes Dorsalis	291
Subacute Unilateral Bulbar Paralysis	291
Peripheral Neuritis from Tea-drinking	291
Hæmorrhagic Pleurisy	361
Case of Pseudo-hypertrophic Paralysis with Contracture	361
Melanosia	361
The Origin and Treatment of Tetanus	362
Ingravescent Cerebral Hæmorrhage treated by Ligature of the Common Carotid Artery	362
Unusual Case of Graves' Disease	363
The Persistence of Albuminuria after Recovery from Nephritis	363
The Pathology of Graves' Disease	364
Abscess of the Liver in Children	365
Impacted Gall-stone removed from the Duct	365
Morphinomania Cured by Rapid Suppression of the Drug	366
Lead-Palsy in Children	366
Abscess of the Brain and Meningitis in Enteric Fever	367
Death under Ether	367
Removal of Biliary Obstruction by Cholecystotomy and Injections of Ether	367
Hysterical Apoplexy with Left Hemiplegia	367
Disease of the Middle Ear after Removal of the Trigeminal Nerve	368
Clinical Memoranda, by John Harold, M.R.C.S., Eng., L.R.C.P., <i>Lond.</i> —A Case of Cervico-Brachial Herpes, with Trophic Ulcera- tion, Neuralgia, and Paresis.—Unpleasant Effects of Phenacetin. —A Case of General Tuberculosis and Meningitis.	442
Stenosis of the Duodenum from Gall Stone.	446
Xanthoma Diabeticorum.	447
Gangrene of the whole of the Right Leg following Acute Rheumatism	447
Double Orchitis with Suppuration.	447
Angio-neurotic Œdema.	448
Ocular Diphtheria and its Treatment.	448
Lichen Pilaris	449
Multiple Cæsarean Sections.	449
Extreme Cardiac Dislocation	449
Anterior Mediastinitis.	450

EXTRACTS FROM BRITISH AND FOREIGN JOURNALS:—

	PAGE
Treatment after Tracheotomy	42
Action and Uses of Piperazine	42
Modern Hypnotics	42
Antidote to Morphine	43
Seborrhœic Eczema	43
Treatment of Whooping Cough	44
Eau-de-Cologne in Coryza	44
Therapeutic Failures in Eczema	45
Malakin : An Anti-Rheumatic and Antipyretic	45
Salicylic Acid locally in Myalgia	46
Treatment of the Eczema of Infants	46
Thyroid Feeding in Graves' Disease	47
Mercury Hypodermically in Syphilis	47
Auto-intoxication and Skin Diseases	47
Diagnosis of the Different Kinds of Meningitis	47
Treatment of Dysmenorrhœa	48
Scurvy in Infants	48
Rickets	49
The Value of Piperazine	50
Idiopathic Enlargement of the Heart	50
Lactophenin	51
Senecio in Amenorrhœa	52
Digestive Properties of Iodic, Bromic, and Fluoric Acids	52
Asaprol	52
Hæmin Crystals from Bloodstains mixed with Rust	53
Enucleation for Goitre	53
Treatment of Ménière's Disease	53
The Slow Heart of Convalescence	53
Pseudo-Hypertrophic Paralysis	54
Feeble Physiological Respiration on the Right Side	54
Tuberculous Disease of the Tonsils	55
Dicrotism of the Pulse	55
Poisoning by Chloralose	55
Treatment of Tuberculous Peritonitis	126
The Heart in Facial Erysipelas	126
Affections of the Middle Ear in Infants	127
Sulphur in Diphtheria	128
Anæmia of Children	129
Treatment of Renal and Cardiac Disease with Caffeine	129
Chloroform and Chloral Hydrate in Puerperal Eclampsia	129
The Pulse Curve in Diminished Atmospheric Pressure	130
Treatment of Acute Rheumatism with Salophene	130
Bromide of Strontium in Acute Gastric Catarrh	130
Pneumonic Endocarditis	130
"Weakened Heart."	131
Treatment of Lead-poisoning with Monosulphate of Sodium	131

	PAGE
Ménière's Disease	212
The Temperature in Cerebral Apoplexy	213
Chloralose	213
Treatment of Whooping Cough	214
Large Doses of Strychnine in Diseases of the Chest	214
Icterus Gravis	214
Infectious Pericarditis	215
Injection of a Glycerine Extract of the Kidney Substance in Albuminuria	215
Cutaneous Absorption of Guaiacol	217
Treatment of Gutta Rosea	293
Biting the Nails	293
Hints on the Treatment of Diabetes	294
A Good Hardening Agent	294
Diagnosis of Sporadic Variola	295
Lævulose in Diabetes Mellitus	295
Intestinal Antisepsis	296
Treatment of Graves' Disease	297
The Pigmentation of Amenorrhœa	298
The Rational Treatment of Urticaria	299
Causes of Pruritus Pudendi	299
Antitoxin Treatment of Diphtheria	300
Chloral Hydrate in Hæmoptysis	369
Recent Views on Diet in Diabetes	369
Treatment of Pruritus Vulvæ	371
Somnambulism	371
Permanganates in Diphtheria	372
The Antitoxic Functions of the Liver.	372
Prophylaxis of Influenza	373
Adherent Pericardium in the Child	373
A New Treatment for Syphilis	375
Thyroid Feeding	375
Cutaneous Gangrene in Hysteria	375
Laryngeal Symptoms in Tabes Dorsalis.	451
Chlorosis in Men.	452
Diagnostic Value of Desquamation in Scarlatina.	452
Blennorrhagic Urethritis in Women.	453
The Heart in Typhoid Fever.	453
Sudden Death in Diphtheria.	453
The Origin of Inflammations in the Urinary Tract.	454
The Physiology of the Carbo-Hydrates.	455
The Natural History of Beri-beri.	456
The Prevention of Insanity.	457
Duodenal Ulceration in Bright's Disease.	459
The Transitory Blindness of Uræmia.	459
A New Enteric Pill.	460
The Value of Massage.	460
The Bismuth Treatment of Gastric Ulcer.	461

DEPARTMENT OF PUBLIC HEALTH:—

	PAGE
Memorandum on Cholera and Professor Haffkine's Anti-Choleraic Vaccination	59
The Epidemic of Cholera at Constantinople in 1893. By Dr. A. Chantemense	67
On the Increase of Diphtheria Mortality in London. By John F. J. Sykes, D.Sc., M.D.	137
On the Notification of Measles and Whooping-Cough	148
Notes on Some Past Epidemics of Plague in Russia. By Frank Clemow, M.D., D.P.H.	220
Diarrhoea and Dysentery in relation to the Water-Supply of Melbourne	232
Dysentery and Contaminated Water at the Suffolk County Lunatic Asylum	238
Cholera in Europe in 1892, and English Cholera Administration. By R. Thorne Thorne, C.B., M.B., F.R.S.	304, 379
Preliminary Notice of the Bacillus of Bubonic Plague. By Professor S. Kitasato	311
Report of the Sanitary Condition of Metropolitan Bakehouses. By Shirley F. Murphy	387
Note on the Needs of Bakehouses in the Metropolis and Large Towns.	464
Cholera and Preventive Inoculation.	467
Note on the Mecca Pilgrimage of 1893.	473
Report on the Lepers' Home, Jamaica.	475
 PRESCRIPTIONS	 57, 133, 218, 302, 377
 NOTES AND QUERIES	 56, 132, 376
 BIBLIOGRAPHY	 58, 135, 219, 303, 378, 463
 INDEX	 483

THE PRACTITIONER.

JULY 1894.

Original Communications.

THE ANTIPYRETIC TREATMENT OF ACUTE DISEASE.

BY THOMAS F. RAVEN, M.R.C.S., L.R.C.P.,

Broadstairs.

INVENTION is the mother of necessity. Were it not for the analysis of coal-tar and its separation into innumerable derivatives with all sorts of dysphonious names—some classical, some scientific, and some popular—we should not be so accustomed to the phenomenon of the *materfamilias*, with clinical thermometer in one hand, and antipyrin in the other, engaged in the scientific and beneficent work of “reducing temperatures” in her nursery. Antipyrin, antifebrin, thallin, &c., have been discovered: therefore they are wanted. Supply has created demand.

But it is not among such well-meaning amateurs only that this mania for indiscriminate antipyresis prevails. There seems to be a school, consisting chiefly of very young men, who look upon a rise of temperature as a bad thing *per se*—as a symptom that must, as far as possible, be put a stop to, at once and regardless of any useful purpose that it may serve in the process of a febrile attack—who, in the presence of pyrexia, resort to antipyretic drugs, to ice, or to cold packs or spongings as naturally as a duck takes to cold water. They would appear

2 ANTIPYRETIC TREATMENT OF ACUTE DISEASE.

to ignore the possibility that a high temperature may be the index of the resistance of the organism to an invading poison, or they would scarcely wish to stop such a beneficent agency. From such practitioners a remark like the following may commonly be heard: "I found the patient with a temperature of 102°, so I gave him a dose of antipyrin." With an antipyretic at hand, even diagnosis becomes superfluous.

To exemplify the possible consequences of this kind of practice, take the following case. A child is presented who has a headache, aching limbs, and a high temperature. Nothing sufficiently definite is seen upon which to found a diagnosis, but the presence of the temperature justifies, in the doctor's opinion, the administration of antipyrin or antifebrin, or one of the numerous drugs of the kind that we have at our disposal. In twelve hours' time a white patch has appeared on the child's pharynx, and the case resolves itself into one of membranous tonsillitis. Supposing that a depression of temperature has been effected, has it served any useful purpose? Is it not much more probable that it has been harmful? For, tracing the course of such cases, is it not found that a high initial temperature is generally followed by an early crisis and rapid recovery, whereas a much more serious and prolonged or, perhaps, fatal illness is likely to ensue when there is a subfebrile or even a subnormal temperature? It may be inferred that, so far from any beneficial result having been obtained by the dose of antipyrin, the effect has been merely an imitation—fortunately a weak imitation—of the unfavourable type of the disease, and possibly an interference with the forces of the system to resist the attack. Again, take measles. Suppose that antipyretic drugs should be given during the period of pyrexia, could any doubt be entertained that the effect might be most prejudicial to the patient? Is not measles, with a sharp temperature accompanying a well-established rash, much more favourable in its immediate and remoter results than measles when the fever is slight and the symptoms but imperfectly developed? Cold bathing was once practised on a large scale during an epidemic of measles. It happened in Fiji. The natives, being attacked, flew into a state of panic and rushed into the sea. The mortality was enormous.

If, then, it be objectionable to treat tonsillitis and measles with antipyretics, the same may hold good with regard to many other acute diseases. These may appear fanciful instances to bring forward, but they are really not so. The young men who, in my personal experience, have been addicted to this process of reducing, or attempting to reduce, high temperatures whenever they have been met with, can hardly have excogitated the routine from their own inner consciousness. They must have been trained somewhere. I have seen one of these antipyretical enthusiasts apply an ice-bag to a threatened abscess; and another I have restrained, not without difficulty, from the use of the same implement in a case of imaginary meningitis which turned out to be erysipelas of the scalp.

However strongly inclined we may be to theory, I suppose that we are at bottom, all of us, empirics—willing to adopt any line of treatment that has been conclusively shown to be useful, though it should be unsupported by, or even opposed to, theory. No one, I take it, will question the extreme value of salicylic acid in reducing the pyrexia, relieving the symptoms, and cutting short the progress of acute rheumatism. We do not know whether the salicylates have a direct action on the *materies morbi*, or whether the control of temperature is primarily their beneficial action; but we are content to employ the drug, thankful to have it at our command, and willing to wait until its action can be explained by some philosopher in the future. Again, experience teaches us that the action of quinine in ague is specific—whether in virtue of its antipyretic powers or of some other inherent properties, we do not know. Also in enteric fever, when the pyrexia is dangerously acute, or when it is unduly prolonged, the facts are sufficient to tell us that in antipyresis lies the safety of the patient.

But when an empirical procedure is less satisfactorily supported by facts, theoretical considerations should be allowed their due weight. I have already mentioned tonsillitis and measles as examples of febrile diseases in which I, for one, should decline, and, as I think, reasonably decline, to adopt any antipyretic measures. But of all the febrile diseases in which an antipyretic routine has theoretically no place, and, practically, a very uncertain and unproven one, pneumonia, in my opinion

stands prominently forward. Acute pneumonia is defined as a specific fever, running a sharp and short course, characterised earlier or later in its progress by inflammation of more or less lung-tissue and by the presence of a bacterium, Fraenkel's *diplococcus*, supposed by many to be the *fons et origo mali*. It is believed that the presence of this microbe is the source of the fever, and that the febrile action is in itself beneficial—an agency by which the intruding germs are destroyed by the healthy cells of the body. The lung-substance appears to be the field upon which this battle between the invaders and the defenders is fought out. Pyrexia, then, is the natural result, the degree of which, within due limits, measures the resistance of the organism to the danger by which it is menaced. To attempt the reduction of temperature under such conditions, unless exceptional symptoms declare themselves, appears to be equivalent to ranging one's self on the side of the enemy, instead of joining in the defence. No doubt circumstances may arise under which antipyretic measures may be urgently demanded—as in hyperpyrexia, when the threatened ruin of the cardiac fibre presents an imminent danger; and in those cases when the pyrexia persists beyond the natural term of the disease the employment of antipyresis may be reasonably considered. But I submit that at present no case has been made out for the use of antipyretic measures in ordinary cases of acute pneumonia. Some years ago I made a trial of aconite, and for a long time I treated every case of acute pneumonia that I met with in this way: one drop of the tincture was given every ten minutes for an hour, and then the same dose was given every hour for four-and-twenty hours. By this means I succeeded, certainly, in controlling temperature; but I failed to observe any control of the disease. All that I could claim was that I had introduced irregularities into the temperature charts—an exploit that I have no ambition to repeat.

Much as I may deprecate the principle of general antipyresis in acute pneumonia, I still more strongly demur to the practice which has for some time been advocated in Germany, and during the last three or four years in England, namely the application of ice-bags to the chest-wall over the site of the inflamed lung or portion of lung. It is to be assumed that this practice

has for its object the direct arrest of the inflammatory process going on in the lung. Now before considering whether this design is a reasonable or a scientific one, I should like, first, to ask what proof exists that a bag of ice, placed in such a position that skin, subcutaneous tissue, bones, muscle, and two surfaces of pleura intervene between it and the lung—what proof, I say, is there that the condition of the lung-substance can be altered by such a procedure? Is it not just as likely that, so far from the blood being diverted from the lung, it is driven into it by the influence of the ice on the surface? And if any advantage should be gained from such applications of ice, would it be certain that this resulted from artificial *anæmia* of the lung, and not from a more copious blood supply?

But, assuming for the sake of argument that the substance of the lung in acute pneumonia can by this means be subjected to a cooling and depletory process, what would be the beneficial influence over the course of the disease? Would such an effect upon the lung control the pyrexia? The answer to this question would appear to be in the negative. For the pyrexia of acute pneumonia, as has been clearly demonstrated, is not primarily nor mainly dependent upon the local inflammation. The conclusive arguments on this head can be briefly enumerated:

1. The pyrexia is as well marked, and often at its highest before, and often long before, any inflammation of the lung exists.
2. Upon the disappearance of the fever, which is often quite sudden, no change is to be traced in the physical condition of the lung.
3. The intensity of the temperature is in no way commensurate with the amount of lung-tissue involved in inflammatory changes; on the contrary, a small area of inflamed lung is attended, as a rule, by a higher temperature than when a whole lobe is consolidated.

The reasonable deduction, then, would appear to be that, far from the inflammation of the lung in acute pneumonia being the cause of the illness, it is, in a manner, analogous to the rashes of the exanthemata, the channel through which the virus is eliminated—or the scene where the invading germs are killed by the defending cells of the organism. In this salutary process there must be inflammation, and woe betide the victims of acute pneumonia who from old age, intemperance, starvation, or any other source

of debility are unable to offer a good inflammatory resistance to the attack of the malady. I do not believe that I am putting this too strongly. Mr. Frederick Treves, in his admirable Lettsomian Lectures on *Peritonitis*, puts the following proposition, startling enough to any one, but doubly, trebly, startling to the antipyretist—"It may be assumed," says Mr. Treves, "that within a month or so from the disappearance of inflammation from the business of the body, the human race would become extinct." The beneficial effect, then, of subduing inflammation of the lung in acute pneumonia by means of ice-bags, even supposing it possible, appears to be problematical. One thing, however, is not problematical but certain, and that is that if ice applied in this way is useful, then the employment of hot poultices must be injurious. You cannot blow hot and cold in this matter. But for my part I am not prepared to admit that the employment of hot applications for the relief of pain in these cases has any bad effect, and so far, upon the evidence, I am not inclined to relinquish their use. Yet one should be always ready to accept the logic of facts before the logic of theory, and if a consensus of opinion among the leaders of the profession should be arrived at, favourable to the ice-bag treatment of acute pneumonia, I should be ready, with due precautions, to adopt it. Hitherto I observe that the preponderance of opinion is that the effect that ice-bags so employed may produce must be attributed to the general lowering of temperature rather than to any impression exercised on the lung itself: and as the general antipyretic treatment of acute pneumonia finds but few supporters, there appears to be no inducement to adopt this ice-method on any grounds. Of course there are excellent statistics to support it. All new methods of treatment, however quickly they are exploded, present most encouraging figures. In this matter, however, I observe that the statistics are vitiated by the avowal that this line of treatment is not adapted for weakly constitutions. Give any man a series of cases of acute pneumonia occurring in otherwise healthy and strong subjects, and he will show most favourable figures from treatment with peppermint-water.

I am distinctly aware that this article is "nothing if not critical"; that much has been said against antipyretic treatment, and that little or nothing has been brought forward in its favour. I would not, however, pose as a hard and fast opponent of antipyretic medicines and methods. For my part, I prefer to follow the teaching of those who are guided in the use of antipyretics by observation of the natural course of febrile diseases; who maintain that it is right to make remedies wait until diagnosis is formed; and who, after all, may not be completely satisfied that, even when the pyrexia of an acute disease is controlled, the disease is necessarily controlled also. They would, perhaps, be inclined to promote antipyresis in so long-continued a pyrexia as that of enteric fever, especially if the chart showed an unusually high reading, and if the normal decline of the temperature were long delayed; but they might hesitate to employ antipyretics in diseases of a much shorter course unless there should exist some uncommon degree or persistence of fever. Such practitioners may be called opportunists, and, if any opprobrium attaches to the term, I, for one, am content to bear it.

Could I have hoped to introduce anything in the least novel or original, I might have adduced many instances of the effects of antipyretic drugs and antipyretic measures. What I have endeavoured to convey is not so much objection to antipyresis as to indiscriminate antipyresis: that process of reducing high temperatures, often prior to diagnosis, regardless of their import and their possible utility; of treating a single symptom instead of regarding its source, a practice which appears to savour rather of the unspeakable methods of the homœopath than of the science of the physician.

CHLORALOSE.

BY CHARLES FLEMMING, M.R.C.S.,

Freshford, near Bath.

SOME apology is needed for making remarks about a new drug, especially when it is a hypnotic, antipyretic, or antiseptic; my excuse is that chloralose, of which I propose to speak, possesses such definite properties as to be worthy of our attention. Chloralose ($C_8H_{11}ClO_6$) is formed by heating a mixture of glucose and anhydrous chloral. It occurs in fine white crystals, slightly soluble in cold water (1 in 300), but easily soluble in hot water. They are slightly bitter to the taste.

Given to a healthy man it soon produces an irresistible desire to sleep. The sleep produced is calm and refreshing, but the subject can be easily awakened, quickly returning to sleep again. During the sleep there is no dreaming, and on waking there is no unpleasant sensation. There is no alteration in arterial pressure, even after large doses. There is no loss of reflexes; experimenters say that they are exaggerated, and that this is due to direct excitability of corresponding centres, and not to depression of inhibitory centres. Temperature is lowered from one-fifth to three-quarters of a degree. The excretion of urea and chlorides is said to be increased.

Chloralose may be given in doses of from two to six grains in milk or cachets. Twelve to twenty grains *may* be given, but these would be heroic doses. It produces sleep in from twenty to sixty minutes, according to the idiosyncrasy of the patient and the size of the dose. Sleep lasts from four to ten hours or sometimes more. When long sleep is wanted it is better to divide the dose. Even after long use, in my own experience, it produces no unpleasant effects such as diarrhoea, constipation,

dyspepsia, or even headache or giddiness; though after large doses slight tremor and vertigo are recorded.

Two cases of temporary poisoning have been published; in the first the patient was found in a semi-comatose condition, face bluish, skin warm and moist, respiration normal, pulse tension increased. These bad effects were possibly due to the use of an impure drug, as the patient had been in the habit of taking it in doses as large as the last; only instead of obtaining the drug as usual from the original makers, Bain and Fournier of Paris, she got a fresh supply from some other firm.

In the *Practitioner* for February 1894, Dr. Watson Williams records a case of poisoning in a "highly neurotic lady. . . a typical case of neurasthenia." Bad symptoms came on after a second dose of ten grains. This bears out the warning of Hanriot and Richet that "particularly with hysterical and neurasthenic women should these early doses be small, perhaps 0·05 or 0·10 gramme for insomnia"—a statement I would like to corroborate. Dr. Williams further writes, "Ten grains is considered to be the minimum initial dose, while twenty or thirty grains is not a very large dose"—a statement that certainly requires correcting.

A would-be suicide took sixty grains of the pure drug, but she simply became intoxicated for twenty-four hours; throughout there was no vomiting, while her heart and pulse were normal. After long use the dose is said to require to be increased, but in the four cases where I have given it for over thirty days I have not found this necessary.

Chloralose is neither anodyne nor narcotic: during eleven months I have used it in the following cases, arranged here according to their clinical characters.

1. A lady with persistent vague uterine pains which prevented her getting any rest, evidently hysterical; other treatment failing, $2\frac{1}{2}$ gr. chloralose at bed-time produced good sleep. After a few nights' rest thus obtained the general condition quickly improved.

2. A lady with hysterical headache and sleeplessness; $2\frac{1}{2}$ gr. of chloralose two nights following cured her temporarily. On the symptoms returning in a couple of months' time, the same treatment again availed.

3. A well-marked case of hysterical chorea. Here the drug, in 3 gr. doses every night, produced several hours quiet sleep, though the spasm returned equally on waking. No other drug or treatment had done so much good.

4, 5, 6. Cases of neurasthenia—two in women, coming on after severe illnesses, the third in a man brought on by business worry. To all complete relief was brought by the use of chloralose; the man required five grain doses. Once good sleep was thus obtained, the general improvement was remarkably quick. Sulphonal had been tried in the second case, and serious faintness and depression followed after a few doses.

7 and 8. Cases suffering from the restlessness and sleeplessness so apt to follow influenza. Chloralose in 4 gr. doses acted well. It was here important not to give any drug that would depress already feeble hearts or interfere with appetite or digestion.

9. A case of epilepsy. A girl, aged 16, who has had fits since infancy, getting worse: attacks last only one or two minutes, are accompanied with loud screaming, occur by day and night, chiefly at night, often five or six of a night. Bromide of potassium or chloral did little or no good, but three grains of chloralose at bed-time gave from six to eight hours' sound and undisturbed sleep. She took the drug for nearly six weeks, the dose was not increased, and was quite as effectual throughout. At first the fits during the day were unaltered, but the last week or so they were less frequent and less marked, so much so that the parents have not considered it necessary to bring the child to see me for three weeks.

10. The case of a blacksmith's lad, aged 21, who for several years had fits at night; he himself knew nothing of them, but always had a headache, and felt unfit for work the following morning. He took first three, then four grains of chloralose every night for a month, and then he emigrated, telling his friends that he felt quite able to do so.

11. A young fellow reading for the army, a somnambulist; he had attacks nearly every night, jumping up in his bed, or getting out, talking loudly, shouting, catching hold of things as if to break them, etc. His parents were most anxious he should persist in his work, and as they had some particular objection

to bromide, I gave him four grains of chloralose at bed-time, and during the fortnight he took it before his examination he had no further attack; leaving off the powders the attacks returned. I ordered them to be continued: as they prevented his walking, but not his talking in his sleep, and as he had to go into training shortly, I advised his parents to consult Dr. Michell Clarke, who prescribed nightly draughts of bromide. He was not allowed to take this, so I unwillingly put him on his powders again; he has now taken them continuously for six weeks at home and in camp, and the result has been quite satisfactory; though whether the drug is in any way curative, as the bromide might have been, I am at present not in a position to say.

12. A farmer's wife, about 48, in an early stage of Bright's disease; she had frequent attacks of palpitation with pain in the chest and much distress, always occurring in the late evening. Though relieved by $\frac{1}{100}$ gr. doses of trinitrine, the attacks were followed by restless and sleepless nights, what sleep she had being disturbed by fearful dreams. After an attack of influenza her condition became much worse, and she could get no rest for a fortnight. Chloral, bromide, morphine and sulphonal I knew from past experience did her more harm than good; I gave her three grains of chloralose and she slept for four hours without waking, then after a quarter of an hour's interval for another two hours, next day she was as she herself said "quite a different being." Her case was peculiarly interesting as she took her dose before going upstairs to bed. Something occurred to prevent her going at once, but in less than half an hour she says she felt she must go to sleep, and somehow managed to get upstairs and to bed. In the morning she had no recollection of events after she left the parlour until she awoke.

13. A man with gouty kidneys and breaking-down heart. Sleeplessness troubled him much: in earlier stages chloral had relieved him, but latterly he could not take it. Chloralose for a short time only gave him sleep, as he was attacked with an intense irritation of the skin, over which it had no control.

14. A morphinomaniac, who after he was cured of his morphine habit suffered from absolute sleeplessness, without pain or distress. His general nervous condition was weak. He has now for nearly five weeks taken five grains of chloralose at bed-

time, which, after an hour gives him from four to six hours' sleep. At one time not having any chloralose I gave him chloralamide for three nights : it produced hardly any sleep and a bad headache throughout.

15. A young lady with a greatly troubled mind, who has not slept well for months, has latterly of her own accord taken chloral, until frightened by reading of a death from the drug she consulted me. I prescribed for her four grains of chloralose, and two days after she called wanting a prescription for more, as she had "slept better than for months and without feeling bad after it in the morning."

In the following cases chloralose was useless.

1. A case of delirium tremens.
2. An alcoholic and bronchitic old woman with signs of commencing softening of the brain, who was up and about the house all night.
3. A woman of 68, who had influenza followed by congestion of both lungs and kidney failure; she was latterly extremely restless day and night, eventually dying apparently of uræmia. Chloralose like chloral caused almost maniacal excitement.
4. A woman with alcoholic multiple neuritis, pains in her legs, and sleeplessness.
5. A case of spasmodic torticollis, with much mental depression.
6. An old woman who fell down stairs from a small cerebral hæmorrhage, and who a fortnight afterwards was still very restless.
7. A case of cerebral hæmorrhage with total hemiplegia, and much pain in thigh and arm preventing sleep.
8. A very gouty old lady with apparently some small nuclear brain lesion. Chloralamide in doses of twenty-five grains gave good sleep without any after discomfort, while chloralose had no effect except (her nurse said) to make her more talkative than before.
9. An old man suffering from hypochondriacal melancholia and total absence of sleep. In this instance the dose given, four grains, may have been too small, as I find by reference

that cases of insanity require, as a rule, much larger doses—eight to ten grains.

10. A woman thought at first to be suffering from the restlessness following influenza, but found eventually to have a postperitoneal abscess.

To sum up, we may expect benefit from chloralose in all forms of functional sleeplessness, in the insomnia of psychical excitement, of hysteria, of neurasthenia and overwork, of functional cardiac irritability, and in attacks of epilepsy and somnambulism.

Secondarily, its use may enable us to separate objective from subjective pain, and so help for instance in the differential diagnosis of some forms of hysteria.

Chloralose will avail nothing in the insomnia of alcoholic excitement, multiple neuritis, or cerebral hæmorrhage, or the sleeplessness due to any painful organic lesion or peripheral irritation.

In the insomnia of lunatics, where there is depression, it is said to be useful if given in large doses.

In the early stages of Bright's disease, chloral hydrate, owing to its effect on the blood-pressure, is probably more efficient.

I have tried to mark plainly the limits to the use of this hypnotic, to save it if possible from the worst curse of a new drug—that of becoming a fashionable favourite and, like other fashionable favourites, having to heal all things and all men, with a success that is more commercially profitable than therapeutically useful.

I cannot help thinking that we may have in chloralose a practically pure hypnotic, that is, a drug of which the dose that is sufficient to produce sleep affects the psychical element directly and solely.

ON THE DISINFECTION OF SCARLET FEVER PATIENTS BEFORE THE COMPLETION OF DESQUAMATION.

BY WILLIAM GIBSON, M.D. EDIN.,

Kirkland, Campbelloon.

IT seems to be the received opinion in regard to scarlet fever that until desquamation ceases contagion is still present. From the long period this process occupies in many cases, and the inconvenience and irksome toil and trouble therefrom arising to families in private practice, I was led to investigate the correctness of the common opinion, and to ascertain whether or not sufferers from this disease might not by some method of cleansing or disinfecting be freed from the contagion before the process of desquamation was completed. In every case I have found that the means used were successful.

The method adopted was simple enough. It was to give a succession of three or four (generally not more than three) comfortably warm baths, sometimes daily, at other times on alternate days, using freely carbolic acid soap, and washing the patient most thoroughly from top to toe. After each bath, except the last, the patient was put back to the bed on which he had lain with the disease; after the last he was taken from the bath into a clean room, there dressed with clothes free from infection, and then allowed to mix with the rest of the family. Any patient with a complication such as otitis, or ulcerated or suppurating throat, was not subjected to the process.

The first case in which I tried the experiment was that of my own son, who had caught the disease at school, about

eighteen years ago. The case was of the ordinary kind, but for ten days the fever ran high, and the eruption was copious. He was isolated with every practicable precaution in my own house. All the other members of the household remained at home. About the end of the third week he was fairly well, and was then subjected to the process of cleansing or disinfecting described, and after the third bath was allowed to mix with the other members of the household, consisting of eleven individuals, six of whom were children, and none of whom had ever had the disease. The result was that not one took it. In his case desquamation went on for three weeks after he was allowed to associate with the others. Since then I have frequently made similar experiments, and with like results.

The circumstances in different cases varied, in so far that in some the other children of the family in which the disease had broken out were removed, and were brought back as soon as the infected member and the house were cleansed and disinfected. In other cases, as with my own son, where the house was large enough, and where isolation could be fairly well maintained, the other children remained. In some other instances again the infected member was removed and brought back to mix with the others as soon as he was cleansed or disinfected.

In none of the cases experimented on was desquamation over when the disinfecting process was applied, and I had the opportunity of observing its continuance in a number of cases after disinfection had been effected. In several cases desquamation went on for weeks afterwards. Whatever therefore be the connexion between desquamation and the infectious micro-organism, the union is not so intimate but that the latter may be destroyed or rendered innocuous by a simple process of cleansing after the second or third week of the disease. Desquamation may then be allowed to continue its course to its natural termination without risk of spreading the disease.

In no case did any complication follow the cleansing process: indeed in all the cases convalescence seemed to me to be rather hastened than retarded. In all the cases every effort was made to keep the patients in bed until disinfection was accomplished

In most cases anointing the body twice daily with olive oil mixed with some disinfectant was employed. The length of the period from the commencement of the disease until the disinfecting process was begun varied slightly according to the health of the patient. In some cases it was begun immediately after the second week, in others it came at the end of the third week.

The use of the bath as a means of treatment in scarlet fever has been recommended and practised often enough; but I have not seen it stated that the application of bathing with a disinfectant might destroy the contagious principle or render it innocuous at such an early period of the disease as between the second and third week, and before desquamation was completed: or that after the application of it in the manner described patients might be at liberty, even though the process of desquamation was still progressing, to mix with the healthy without risk of spreading the disease.

Should this simple process of cleansing or disinfecting scarlet fever patients so early in the course of the disease, or as soon as convalescence is established, prove generally successful, the advantage to private families would be very great. The maintenance of isolation and other prophylactic means in private houses for four to six weeks, when the patient to all appearance is fairly well, is often effected only at great inconvenience, and is a trying hardship to patient and relatives. If the period could with safety be reduced to two or three weeks without risk of communicating the disease, even though desquamation was going on, the relief to all concerned would be correspondingly great.

THE OPERATIVE TREATMENT OF RUPTURED URETHRA.¹

BY EDWARD DEANESLY, M.D., B.SC. LOND., F.R.C.S. ENG.,
Hon. Casually Surgeon, Wolverhampton General Hospital.

RUPTURE of the urethra occurs almost always in one of two situations, either in the immediate neighbourhood of the bulb or in the membranous portion. Rupture of the bulb is always the result of direct violence such as a blow or kick in the anterior part of the perineum, by which the urethra is violently compressed against the pubic arch. Such an accident may cause a complete transverse rupture, or merely a partial tear of the mucous membrane and submucous and muscular coats. In the latter case the tough fibrous outer wall of the urethral tube remains intact, but within this the mucous membrane and spongy tissue may be torn across through nearly the whole circumference, and stripped up longitudinally for a considerable distance as well. A narrow bridge of mucous membrane, however, generally remains intact along the roof of the urethral canal. This partial rupture by contusion is the commonest form of ruptured urethra.

Rupture of the membranous portion is nearly always complete. Although it occurs most commonly in conjunction with fractured pelvis, it may be caused by direct violence. Owing to its more exposed position in the anterior part of the perineum, the bulb is much more commonly injured by direct violence than the membranous part. If however the blow acts immediately in front of the anus, the urethra is carried suddenly forwards, and is then snapped across at the comparatively fixed part where it enters the triangular ligament, in the same way

¹ Read before the Staffordshire Branch of the British Medical Association, May 31, 1894.

as the intestine is often ruptured at the junction of the movable jejunum with the fixed third part of the duodenum. The record of cases submitted to operation shows that in all cases in which the membranous urethra has been ruptured by direct violence, the rupture has been situated immediately in front of the triangular ligament at the junction of the membranous and bulbous portions.

When, on the contrary, the rupture results from fracture of the pelvis, it is usually situated immediately behind (above) the posterior (upper) layer of the triangular ligament, at the junction of the membranous and prostatic portions. When the pelvis is fractured by violent antero-posterior compression, the pubic bones are fractured and carried backwards together with the bladder. The triangular and sub-pubic ligaments enclosing the membranous urethra are torn from their attachments to the pubic arch, but are prevented from being carried backwards by their firm attachments to the fascia lata of the thighs. Hence the urethra is violently stretched from before backwards, and snaps at the back of the triangular ligament, just in front of the prostate. In some cases the pubo-prostatic ligaments which fix the neck of the bladder to the back of the pubis are also ruptured, and the bladder is thus completely separated from its anterior attachments.

In cases of partial rupture of the bulb there is not usually complete retention of urine, and any extravasation which occurs is limited and superficial. When the urethra is completely divided in front of the triangular ligament, there is generally complete inability to void urine, and considerable extravasation occurs unless prevented by proper means. This extravasation follows the typical course described in text-books, spreading anteriorly towards the scrotum and groins. When, however, the urethra is ruptured behind the triangular ligament in cases of fractured pelvis, extravasation occurs in the prevesical space between the bladder and pubis, where a considerable quantity of urine may collect. This fact sometimes leads to a fallacy. A catheter is passed, following the roof of the urethra, and keeping the point strictly in the middle line. On depressing the handle between the legs the catheter enters a space in which it is freely movable from side

to side, and from which five or six ounces of clear urine may be withdrawn. By the rectum the catheter feels exactly as if in the bladder, although it is in reality in the prevesical space. This occurred to me in a recent case, and the fallacy was only demonstrated post-mortem.

The ordinary treatment of ruptured urethra at present laid down in text-books and generally practised is, if possible, to introduce a catheter and tie it in; if this is impossible, to cut down on a staff in the perineum and allow the urine to drain away by that route. At the same time, or later, attempts are made to find the proximal end of the canal and to restore its continuity by the passage of dilating instruments. The results of this treatment are extremely unsatisfactory—a stricture is almost always left, and perhaps sinuses as well.

Although this has been and still is the routine treatment, various surgeons have from time to time endeavoured to escape from the trammels of tradition, and have carried out the very obvious measure of suturing the divided canal, either primarily or after re-section of the resulting stricture at a later date. This was first carried out, according to Hurry Fenwick, as long ago as 1828. Henry Morris twice performed primary suture of the ruptured or divided urethra in 1874. Wright of Manchester has done the same, and doubtless some others. The region of the perineum, however, offers certain obvious obstacles to the pursuit of the ideal in the treatment of wounds, hence the example set by these surgeons has not been generally followed. Now, however, that surgeons have got over the idea that the perineum is a region where primary union is not to be looked for, and where they may therefore disregard the troublesome minutiae of modern wound-treatment, the suturing of ruptured urethras will probably become more common. Within the last few years several strikingly successful examples of the method of treatment have been brought forward; on the Continent by de Paoli, Vignard, and Guyon, and in England by Woolcombe and Pearce Gould. From a study of these cases, and of others which have come under my own observation in the last few years, I propose to describe briefly what appears to me to be the best mode of dealing with ruptured urethra according to the situation of the rupture and the presence or absence of complications.

At once the commonest and the simplest form to deal with is the rupture of the bulbous portion caused by direct violence. I believe that in all cases where a blow on the perineum has produced free bleeding from the urethra the latter should be exposed by a perineal incision and examined, whether a catheter can be introduced or not. The tying in of a catheter to a great extent obviates the risk of extravasation of urine, but in no way prevents the formation of a most intractable stricture. If the urethra is completely divided, the ends should be carefully and accurately sutured. Contrary to what might be expected, the rupture has generally been found to resemble a clean transverse cut; but if the divided ends should be found lacerated and bruised, the bruised portions should be cut away before approximating them.

The choice of suture offers some little difficulty. If primary union could be counted on with certainty, sutures of aseptic silk or catgut cut short and buried in the ordinary way would be best. The liability of the wound to be contaminated with urine makes it difficult to count on the complete enclosure or absorption of buried sutures. If the suture once becomes septic, even if primary union occurs, it will finally cut its way out, either into the urethra or into the wound, and while retained it may act as an irritant seton and set up that very cicatricial contraction and stricture which it is the primary object of the operation to prevent. For these reasons I think it better to use non-absorbable sutures of horsehair, silkworm gut, or fine silver wire, and to remove each suture after union is complete. For this purpose the ends may be left long and brought out of one angle of the wound, or the latter may be left open. The sutures should be passed so as to include the whole thickness of the urethra except the mucous membrane, and care should be taken that the latter is not tucked in between the raw surfaces. Four sutures are usually enough. The perineal wound may be accurately sutured, the stitches including the bulbo-cavernosus muscle; and usually heals by primary union without difficulty. I am, however, by no means sure that it is not better to leave it open in order to facilitate the removal of the urethral sutures, which is by no means an easy matter after the perineal wound has closed. On exposing the urethra it may be found that the rupture is only a partial

one, involving the mucous membrane and spongy tissue without opening the fibrous sheath, as in the writer's case narrated below. In such cases the urethra should be laid open freely by a longitudinal incision in its floor, and the extent of the injury examined. In cases where the whole calibre of the urethra is much bruised and torn, it would, I think, be the best practice to completely excise the injured portion, provided it does not exceed one half to three quarters of an inch in length, and to reunite the ends, after separating, if necessary, each from its attachment to the corpora cavernosa in order to approximate them without undue tension. In most cases, however, all that is necessary is to accurately suture the torn mucous membrane by fine sutures and the outer layers by somewhat stronger sutures. In all cases a catheter should be passed into the bladder and tied in. For this purpose nothing is so good as the soft indiarubber kind, of No. 8 or 9 English size.

A case in which a partial rupture of the bulbous urethra was treated in this way was published by Mr. Woolcombe in the *Lancet* of 1888. The case was treated in this manner in order to arrest continued hæmorrhage, which other measures failed to arrest. The result was very satisfactory. The only other case of partial rupture treated by urethrorrhaphy which I have been able to find recorded is one on which I operated nearly a year ago at the Wolverhampton General Hospital, by the kind permission of Mr. Winter, the honorary surgeon, under whose care the patient was admitted. In this case a young man, aged twenty, fell while running, and struck his perineum against the heel of his boot. Twenty hours after the accident, on exposing the urethra in the perineum, the outer coat was found intact, but a rupture of the inner coat could be easily felt on pinching the urethra between the finger and thumb, just in front of the bulb. On opening it at this situation by a longitudinal incision an inch in length, a large V-shaped flap of mucous membrane and spongy tissue, the base of which was directed backwards and embraced the lower two thirds of the circumference of the urethra, was found detached from the floor of the latter. The flap was sutured in its natural position in the manner already described, and a catheter tied into the bladder. The ends of the sutures, which were of horsehair and silkworm gut, were tied together and brought out through

the wound, the rest of which was sutured. Primary union occurred except around the ends of the urethral sutures. The catheter, an indiarubber one, was kept in for one week, then the patient was taught to pass it himself every time he wished to make water. This he did without difficulty.

On the twelfth day the urethral sutures were removed, some little force being necessary to do this. On the next day urine escaped along the track of the deep sutures, and after a few days a fistula formed at this spot, through which urine escaped freely on micturition. This healed spontaneously within a month from the time of the accident. The calibre of the urethra has been tested from time to time, but there has never been the least difficulty in introducing a full-sized dilator. Although twelve months have elapsed, there is not the slightest sign of stricture, nor can any induration or thickening be felt in the urethra at the site of rupture.

It is instructive to contrast a similar case which on an earlier occasion I treated according to the orthodox routine by tying in a catheter. The latter was left out on the thirteenth day. Two days later, with the greatest care and patience, I was unable to introduce even the smallest instrument. Twenty-three days after the accident the size of the stream was reduced to No. 2 English, and a hard spindle-shaped stricture could be felt in the perineum just behind the scrotum, and at a later date necessitated an external urethrotomy.

In all cases, therefore, where rupture of the urethra has been caused by direct violence, I think it should be the rule of surgery to perform primary urethrorraphy. Cases not treated in this way almost always result in stricture. This form of stricture is so intractable to all forms of dilatation and division that during the last few years many surgeons on the Continent and in America have bodily excised the strictured portion and restored the continuity of the canal by suture. Undoubtedly this treatment has much to commend it. The stricture is usually a single one of very limited length, and in most cases easily accessible. There is no difficulty in detaching the urethra from the corpora cavernosa sufficiently to allow the approximation of the divided ends. Lastly, the results obtained prove that a urethra of perfectly normal calibre with no tendency to contract can be obtained in this way and in no other.

Cases of ruptured urethra complicating fracture of the pelvis are very rarely capable of being dealt with by primary urethrorraphy. Indeed it is not common for these cases to live beyond a few days. As a rule, therefore, nothing can be done in the first instance beyond providing against extravasation by perineal section. A secondary urethrorraphy might perhaps be possible in some cases after recovery from the fracture.

In conclusion, I may mention certain objections which may be raised to the performance of urethrorraphy. It may be said that it is sometimes impossible to find the proximal end of the urethra owing to its depth. In cases of rupture by direct violence the rupture is always in front of the triangular ligament, and in a recent case of this kind no surgeon with a competent and practical knowledge of anatomy could fail to find both ends of the urethra. In cases of fractured pelvis, indeed, or in secondary cases with tight stricture perhaps complicated with sinuses and fistulæ, the difficulty may be great, but should not be insuperable. By prolonging the incision backwards through a portion or all of the sphincter ani, and by detaching the anterior wall of the rectum, it is quite easy to expose the prostate, or even the base of the bladder. At this point it would always be possible to expose the urethra behind the stricture, and if necessary to open it and pass a sound forwards.

Hæmorrhage from the injured urethra, especially from the bulb when this is injured, is generally free enough to somewhat embarrass the operation, but need not be alarming, as it is readily arrested by suturing the urethral wound. Extravasation of urine has often taken place before the case has reached the surgeon's hands. Recorded cases, however, prove that this is no bar to the success of primary urethrorraphy, even when twenty-four hours or more have elapsed between the accident and the operation.

Lastly, the risk of producing a permanent fistula is extremely small. In the absence of stricture or some form of obstruction, it is by no means easy to produce a permanent urethral fistula, so great is its tendency to close. Certainly the insignificant risk of fistula is quite outweighed by the very grave risk of stricture when ruptured urethra is treated by ordinary methods.

Reviews.

Medicated Baths in the Treatment of Skin Diseases. By LESLIE PHILLIPS, M.D. Cr. 8vo, pp. 103. London: H. K. Lewis. 1894.

THE author of this small book gives his readers a succinct and pleasantly written account of the composition and action of various medicated baths, and the indications calling for their employment in the treatment of skin diseases. In Part II. the formulæ of the various baths are given, whilst the diseases of the skin in which the baths thus described may be employed are enumerated in Part III. The author might, with advantage, have devoted a few pages to the subject of spas in the relation to dermatology. Dr. Phillips's book is rich in trustworthy information.

The Physiologist's Note-Book: A Summary of the Present State of Physiological Science. For the use of Students. By ALEX. HILL, M.A., M.D., Master of Downing College, Cambridge. Cr. 8vo, pp. 200, with 36 plates and blank pages for MS. notes. London: Charles Griffin and Co. 1893.

DR. HILL presents us with what he terms a physiologist's note-book—a note-book intended for students of physiology. He does so considering that the literature of systematic physiology is well-nigh complete, and that the very large proportions of the well-known and deservedly acknowledged standard textbooks on the subject are calculated from their bulk to interfere with the conquest of a science a thorough knowledge of which is all-important to the student of medicine. Hence it is that Dr. Hill steps in to assist, by this note-book, the student of medicine in codifying his knowledge; he produces a note-book for the student which the student, we venture to think, ought to have made for himself.

The essential value of a student's note-book lies in the fact that he has himself compiled it. It enables him quickly to

recall to mind the details which lie hidden beneath the lines. If a note-book be prepared for the student, he is apt too readily to consult its pages, and to eschew the pages of his standard text-book.

Credit must, however, be given where credit is due; and having carefully perused Dr. Hill's work, we have no hesitation in stating that no pains have been spared in making the note-book a thoroughly trustworthy guide, the facts and the conclusions to be deduced from them being in every case stated in clear and succinct language.

In the section on digestion we notice a few statements which require modification, such as that "bile is an antiseptic," and that "when it contains mucin gastric juice converts cane-sugar into dextrose." The work on the whole, however, is accurate and generally up to date.

Difficult Labour: A Guide to its Management. For Students and Practitioners. By G. ERNEST HERMAN, M.B.Lond., F.R.C.P., Senior Obstetric Physician to the London Hospital. 8vo, pp. 443. 162 Illustrations. London: Cassell and Co., Limited. 1894.

THE author was right in thinking that a work was needed which could give a busy accoucheur a clear view as to the best course he could adopt in some unusual complication that might at any time occur in his practice. If he were to stock his mind with the contents of this book, he would never be at a loss to know how to act; and even if an emergency arose requiring prompt action, and a consultant were not available, a brief dip into the pages of this book would almost certainly give him the information he desired.

The author traces most of the puerperal accidents back to their original causes, and proves the importance of this by also showing that a timely removal or reversal of these causative abnormalities may often easily remedy the resulting complication.

Amongst the many excellent chapters may be mentioned the one on "Abnormal Uterine Action," full of valuable practical advice. The author here points out the great danger of *post-partum* hæmorrhage after forcible delivery in cases of secondary uterine inertia, and gives the means by which the diagnosis can be made between that condition and tonic uterine contraction, which have many points in common. Inasmuch as the treatment is diametrically opposite, the importance of a correct diagnosis is very evident.

The chapters on rupture of the uterus and placenta prævia are also models of concise reliable information; and the last few chapters on the forceps, Cæsarean section, symphysiotomy, and other operations, contain all that a student of mid-

wifery can expect to obtain from a description of the various details, it being left to actual experience to give him that practical manual skill which can be obtained from no descriptive account, however realistic.

The book is wonderfully free from statements that might be adversely criticised, though with one or two opinions we might disagree. Thus, in the treatment of transverse presentations, when the os uteri is fully dilated, and the bag of membranes entire, the author says "perform *internal* podalic version and deliver." Surely this is exactly the case where bipolar version would most usefully be performed. In a description of the injuries to which the foetal head is exposed no mention is made of cephalhæmatoma. This is probably an oversight.

The diagrams are numerous and well chosen, many being original.

We believe that the author will find that his efforts to produce a trustworthy guide will be highly appreciated both by students and by practitioners, and that his very excellent handbook will become extremely popular.

Grundriss der klinischen Bakteriologie für Aerzte und Studierende. [Elements of Clinical Bacteriology for Practitioners and Students.] Von DR. FELIX KLEMPERER und DR. ERNST LEVY, Privatdocenten an der Universität Strassburg-i.-E. Berlin: August Hirschwald. 1894.

It is little matter for surprise that works on bacteriology at the present time form a very large proportion of all scientific publications. The subject is comparatively so new, and additions to our knowledge are so frequent, that we must expect in the immediate future very many additions to our literature of this branch of science. The present work views the subject from a clinical standpoint, which makes it of especial value to practitioners and students, and also much pleasanter reading for every one. Great care, it is hardly necessary to say, has been expended in the general part of the subject; and we are agreeably surprised to find that no space has been wasted, as is often the case in German works, by the addition of long descriptions of very elementary methods of technique; although possibly a few remarks on oil-immersion lenses, and the ways and methods of using the microscope for the examination of micro-organisms, would have been of value to students of bacteriology. Methods for the cultivation and examination of micro-organisms are concisely and clearly given; and the text has not been burdened with descriptions of the endless modifications of the more usual staining processes. In the second part, inflammations and suppurations as they occur in various organs and under different conditions are dealt with, and the

facts known about the organisms found in each are shortly and carefully stated. This part of the work is of great value for reference, especially as the authors have simply stated facts, and have not endeavoured to ascribe to organisms definite pathogenic properties for which there is no warrant.

The specific diseases due to micro-organisms are treated of in the third part; and the evidence concerning some of the "non-proven" affections has been very judiciously sifted, while the account given of the undoubted germ diseases is quite adequate for the purposes for which it was written. An interesting description of mycoses—infections with moulds, &c.—will be found in the fourth part, with an account of the protozoa associated with dysentery, tropical abscess of the liver, and malaria.

We think the authors are perhaps well advised in omitting any mention of the so-called protozoa of cancer, and in the present state of our knowledge of this subject its absence does not detract seriously from the value of the book.

In an appendix, the bacteriological investigation of earth, air, and water is described, with an account of the more common micro-organisms that are found therein. The book closes with an excellent *résumé* on the subject of disinfection and its practical applications in every-day life.

The authors are to be congratulated on the production of a very useful and handy text-book for practitioners and students—valuable not only for the amount of information which it contains, but for the moderate and judicial tone which pervades it.

A Manual of Medical Treatment, or Clinical Therapeutics. By I. BURNEY YEO, M.D., F.R.C.P., Professor of Clinical Therapeutics in King's College, London, and Physician to King's College Hospital. With Illustrations. 2 vols., pp. 631 and 744. Second Edition. London: Cassell and Co., Limited. 1894.

THERE have been many evidences lately of a returning sense amongst us of the importance and usefulness of medicinal treatment. For the last thirty years pathological anatomy has had almost the entire field to itself. It was the whole thought of some physicians, who despised as well as neglected therapeutics. This was in one way probably a fortunate phase of the development of medicine, both for therapeutics and for patients. It helped to disgrace and depose what Dr. Yeo calls dogmatic medicine. There has been time spared from the treatment of patients for the study of disease. Morbid processes have been permitted to run an undisturbed course, and their natural history has been for the first time ascertained. The *vis medicatrix nature* has been re-established on scientific grounds.

One result of all this is that fresh confidence—confidence of a new and sure kind—is returning in the struggle with disease. Add to this the fact that the demand for help is ever pressing, and it is no wonder that treatment is reviving.

An evidence of the reality of this change is the number of books on therapeutics which have lately issued from the press. The newest, and in many respects the best of them, is Dr. Yeo's *Manual* now before us. The author fully appreciates the position which he occupies in coming forward as a guide to the present and the future practitioners of medicine. "Dogmatic medicine," he says, "no matter by what name it is known, is a thing of the past." It is his aim, wherever it is possible, "to deduce rational indications for treatment from an examination of the pathological nature and the clinical course and characters of the disease under discussion." Dr. Yeo states the object of the work to be the study of disease from the point of view of treatment. Perhaps he would have been nearer the mark if he had said that it is the study of treatment from the point of view of disease. At any rate his teaching of the subject starts from the disease, not from the means or method of combating it; and by "the disease" here is meant a concise presentation of its clinical history, course, and pathological character.

We may turn now to inquire how far the author has succeeded in the task which he set himself. His plan has been faithfully worked out, and the result is very satisfactory. We have presented to us an account of disease which will be most readily conceived by comparing it with what we find in systematic text-books on the practice of medicine. The diseases of the different systems—alimentary, circulatory, respiratory, &c.—are taken up *seriatim* and discussed. But whilst the section on treatment in many of our text-books is only too frequently a brief paragraph crowded in at the end of a lengthy description of the disease, here we have, on the contrary, a brief but clear summary of the facts respecting each disease, employed as an introduction to a full account of the rational treatment of it. Wherever it can be adduced, a reason is offered for the treatment recommended. We do not propose in this notice to criticise the measures which Dr. Yeo recommends in the treatment of different diseases. To be judged fairly on its merits, the work must be regarded as a whole. There is practically no end to the differences of opinion that exist, and that might be raised and variously defended, with respect to the management of morbid affections of every kind and of every organ. On the whole, more satisfaction is to be obtained, whether by student or by practitioner, from a guide to treatment which shows that the writer has a mind of his own, than from a therapeutical "index" or other compilation of opinions of eminent authorities,

however rich it may be made. When Dr. Yeo permits himself to wander into the ways of other men, as he occasionally does, and quotes the opinions of certain foreign professors, only to disagree with them, he loses the hold on the attention of his readers which his excellent style otherwise secures him, and teaches them little that is of real service. One other word may be said by way of criticism of particulars. Why are not the prescriptions given at length? Why should a book intended to instruct students be filled with abbreviations? It is notorious that students disgrace their teachers when asked to write a prescription in full at the public examinations, as all of us ought to *be able* to do, whether we do so or no. It would have been better in every way if the author had written "*Decocti Hordei*," and not "*Decoct. hordei*." Abbreviations of this kind save no one trouble, and are, in reality, only a means of escaping a display of the ignorance which they engender and encourage.

We must not permit ourselves, however, to dwell on matters of this kind, which concern the teacher, not the practitioner. As we have suggested in our notice of it, Dr. Yeo's work, both in its conception and its execution, is highly commendable. It is sure to promote rationalism in therapeutics; and it will be none the less valuable as a practical guide on this account. The fact that it has already reached a second edition is gratifying, not only to the author and the publishers, but to all of us also who have the interest of therapeutics at heart; for it is a fact which proves that science is as surely being applied in the art of medicine at the end of the century as it was beginning to be applied in the mechanical arts a hundred years ago.

Clinic of the Month.

Hæmorrhagic Diathesis; Abdominal Section; Recovery.—Dr. Sutton records the case of a young lady, aged 24, who consulted him for an abdominal tumour, and gave a history of severe hæmorrhage after extraction of a tooth and of repeated and severe attacks of epistaxis. She had further bleeding from the nose between the time of his seeing her and the operation, which he only undertook at her urgent request. We give the account of the operation in his own words, the patient being under the influence of the A C E mixture: "She was in the Trendelenburg posture with high elevation. With great rapidity I removed two ovarian cysts, one of which was adherent in the pelvis; the posterior surface of the uterus and the left wall of the true pelvis were left raw; and the bleeding was persistent. A few hot sponges were packed in tightly, but made little impression upon it. I caught at its middle point a handkerchief, eighteen inches square, of iodoform gauze, with the sponge forceps, and carried the caught point to the bottom of Douglas's *cul-de-sac*. Into the funnel thus made I thrust handkerchiefs of iodoform gauze until the true pelvis was packed full; the free ends of the handkerchief, forming the funnel or bag, were gathered together in the lower angle of the wound. Above these the wound was closed with interrupted sutures placed four to the inch. Over the scaphoid belly, and particularly over the entrance to the pelvis, close to the symphysis pubis, a large mass of absorbent cotton was placed, and firmly pressed down upon the intestines and intra-pelvic packing with a Scultetus bandage. With but little pulse she was put to bed, head downward, on an inclined plane formed of the hair mattress. Trinitrine and brandy were given with the hypodermic syringe; she rallied in a few hours. Thirty-six hours after the operation a little chloroform was given. I reopened the wound, took out the Mikulicz packing, and reclosed the wound in its entire length this time. During her convalescence she had repeated attacks of epistaxis, which were controlled by plugging the posterior nares. Finally she

recovered." He had not heard of her for several months at the time of publishing the case. (*New York Medical Journ.*, April 21, 1894.)

Paroxysmal Hæmoglobinuria.—Mr. Davenport Parry reports the case of a railway porter, aged 45, who was taken one morning with chilly feelings, and by midday felt so ill that he was obliged to return home. At 3 P.M. the doctor saw him, when he was still complaining of chilliness; his fingers and toes were cold, white, and clammy, but his ears were natural; the temperature was normal. Some urine just passed was the colour of thin cocoa; it was acid, and of specific gravity 1022, contained some albumen, and under the microscope revealed reddish-brown granular matter but no blood-corpuscles. The conjunctivæ were yellow, and there was an aching pain in the back. The man had had a somewhat similar attack two years previously, which was ascribed to his lifting too heavy a weight. He had had no other serious illness: no ague, no syphilis. This attack lasted eight days. Some six months after he had another attack; and the doctor, having in the meanwhile seen a paper by Dr. Haig urging that all attacks of paroxysmal hæmoglobinuria are coincident with excess of uric acid in the urine, put him at once upon full doses of sodium salicylate, with the result that the attack lasted two days. He thinks that this line of treatment would be well worthy of trial in subsequent cases. (*Austral. Med. Gaz.*, March 15, 1894.)

Tumour of the Pancreas.—Dr. Osler, in the course of some papers on the "Diagnosis of Abdominal Tumours," points out that the tumour in cancer of the pancreas cannot always be felt, especially when ascites is present. He records the case of a man, 34 years of age, who had been ailing for two months and jaundiced for four weeks. He was much emaciated, and presented the usual characteristics of obstructive jaundice. The abdomen was distended, particularly in the upper zone; it was tympanitic in front and dull in the flanks with well-marked movable dullness; no peristalsis was seen in the epigastrium; the prominent tympanitic zone extended as low as the umbilicus. On deep pressure in the right epigastric region, between the navel and the costal margin, there was a hard nodular mass, difficult to define owing to the distension. An exploratory operation was undertaken by Dr. Halsted, as the patient was anxious that something should be done, and a former medical adviser had suggested that he had gall-stones. Much more ascites was found than had been anticipated; the distension of the epigastrium was due to the floating on the top of the fluid of the colon and small bowel. The gall-bladder was found to

be distended, but the mass which had been felt was a deep-seated growth in the region of the head of the pancreas. The patient was relieved by the operation, but no essential change took place, and he died, much emaciated, a month after his admission into the hospital. At the post-mortem examination the head and body of the pancreas were found to be the seat of a tumour which had infiltrated the wall of the duodenum, and the posterior wall of the stomach was also found to have been directly invaded. (*New York Medical Journ.*, May 5, 1894.)

Acanthosis Nigricans.—At a recent meeting of the Royal Medical and Chirurgical Society, Mr. Malcolm Morris showed a case of this exceedingly rare disease. The patient, a single woman, *æt.* 35, was admitted into St. Mary's Hospital on February 15, 1894, suffering from widely disseminated discoloration of the skin with diffuse warty growths in various parts. Previous to the appearance of the disease her health had been good, but for more than a year before the onset menstruation had been very irregular, chiefly on the side of excess. In October 1893 she noticed general bronzing of the skin over the upper part of the body; and crops of large flattish warts came out on the hands, in the axillæ, on the umbilicus, and elsewhere. These were soon followed by the appearance of black patches in various situations, but mainly where wartiness was most marked. On admission she looked wasted and weak, but her temperature was normal, and there was no evidence of disease of any of the internal organs. The skin over nearly the whole of the body was rough, and for the most part distinctly bronzed, with the exception of the face, which was the seat of a permanent deep blush; the natural folds were almost everywhere exaggerated, particularly in the neck and on the hands, where the skin felt like rough-piled velvet. Round the neck there was a wide band of blackish discoloration, which spread downwards in front between the mammæ and some way on the abdomen; similar patches were seen in the axillæ, the bends of the elbows, and the popliteal spaces. The axillæ were occupied by masses of warty growths deeply fissured here and there; from the fissures there oozed an offensive discharge, which seems to have washed the staining material out of the middle part of the papillomatous mass. A few small warts were scattered about the face and the lower part of the forearm on the flexor aspect. The umbilicus was the seat of a button-like wart of considerable size, surrounded by a black zone; from this wart an offensive discharge exuded. A few warts were scattered about on the thighs, and there was general roughening and thickening of the skin, particularly on the soles of the feet, with bronzing about the knees and ankles, and yellow discoloration

of the soles. There were masses of warts in each auditory meatus, and the patient was partly deaf in consequence. The mucous membrane of the lips, cheeks, palate, and gums was wrinkled, dry, and warty; there were large warts, with deep fissures between them, on the tongue. A similar condition existed in the vagina. The throat was affected. The black stains were found to be caused by masses of tiny granules situated in the superficial layers of the epidermis; on microscopic examination they were found to consist of dried epithelial scales with no trace of pigment. The warty growths were papillomatous in structure. The condition gave rise to no subjective symptoms except an uncomfortable dryness of the lips and mouth. While the patient was under observation the black discoloration spread over the whole of the abdomen, and over the back as high as the middle of the scapulæ. There was some further development of warts on the scalp and in the lumbar region. A thick growth of light-coloured hair took place on the face, and to a less extent on the chest and abdomen. Slight improvement was noticed in some parts, especially on the hands, knees, and feet. The patient's general condition continued fairly good, but she had become very nervous, and the knee-jerk was absent on both sides. The umbilical growth had been removed, and the warts in the ears had been treated with salicylic acid with some success. The case was submitted as an example of the disease called by Unna "*Acanthosis Nigricans*." Only two similar cases had been recorded (Pollitzer, Janovsky). Nothing was known as to the pathology of the condition. (*Proceed. Roy. Med. and Chir. Soc.*, June 1894.)

Strychnine Poisoning followed by Acute Ascending Paralysis.—Dr. S. H. Perry reports the case of a man, aged 25, who was brought into the Birmingham General Hospital, having shortly before taken some "vermin-killer" in beer. General spasms were occurring every few minutes—excited by touching the patient or by movement on his part. The stomach was washed out, and tannic acid injected into it. Ten grains of chloral also were administered hypodermically. Within five hours of taking the poison all spasm had passed off. Next morning, as the patient had not passed urine, the catheter was used, and the urine was found to contain albumen and blood, and hyaline and blood-casts. Vomiting had occurred during the night, and persisted. There was aching pain and slight tenderness in the lumbar region. The signs of acute nephritis persisted until his death. Hiccough set in the day after admission, and likewise persisted. The temperature was 102.4° on admission, but it became normal on the third day,

and so remained. Four days after admission he complained of complete loss of power in his legs, and decided loss in the arms; he had only noticed the weakness of his legs on the preceding evening. There was no tenderness over the spine, nor did he complain of pain in any part of the body. Sensation was not impaired as regards touch or pain. By midday there was complete loss of power in the upper and lower extremities and in the intercostals, the diaphragm acting well. The knee-jerks and superficial plantar reflexes were absent; the abdominal and epigastric reflexes were present. Dyspnoea set in, and he died asphyxiated in the course of the afternoon. Shortly before death some return of movement was noticed in the upper intercostals. The post-mortem examination revealed the usual signs of asphyxia. The spinal cord was healthy to the naked eye, and on microscopical examination. Dr. Perry says in conclusion: "The most reasonable explanation would seem to be that the nephritis was caused by the strychnine, and that the paralysis was of uræmic origin. Might exhaustion of the spinal centres following on over-stimulation by strychnine have assisted in the causation of the paralysis?" (*Birm. Med. Review*, May 1894.)

Cystic Sarcoma of the Uterine Mucosa.—Before the Medical Society of the Ninth Arrondissement, Dr. Ozeune read a paper on the above subject. The patient, a woman of 48, was found to be suffering from a polypoid growth projecting from the neck of the uterus. There was no family history of importance. Since 1893, menstruation, though regular, was excessive, and she had suffered from a colourless discharge of a disagreeable odour. On examination the lips of the os were found to be œdematous, and what was at first thought to be a mucous polypus was felt. The cavity of the uterus was enlarged. The tumour itself was soft and pliable, and could be partially detached by the finger. It was found to be cystic, and small secondary growths were felt on the mucous surface of the uterus. It then became evident that the growth was malignant, and this view was justified by the subsequent course of events. Despite thorough curetting, the patient became worse and worse, and secondary growths appeared in the pelvis. The nature of the tumour histologically was found to be that of a cystic sarcoma, containing embryonic muscular fibres and hyaline cartilage, in addition to its sarcomatous elements. (*Journal de Médecine de Paris*, vol. i. p. 171, 1894.)

Colchicum Poisoning.—Dr. H. N. Moyer records the case of a young woman, aged 22, who took an unascertained dose of colchicum, probably the wine of colchicum. The quantity taken appears to have been more than a drachm. She

went home, had a cold bath, and changed her clothing. In little more than two hours from taking the medicine she had a severe chill, followed by vomiting and frequent movements of the bowels, with very severe colicky pain in the abdomen. This lasted for three hours, when she was seen by a doctor, who gave her a sedative. Early the next morning the pain subsided, the vomiting ceased, and she became quite comfortable. At noon of that day her pulse and respiration began to fail, and she was again seen by the doctor, who gave stimulants. She remained in the same state till midnight, when another attack of cardiac and respiratory failure came on; and in spite of treatment she continued to get weaker, and died some thirty-six hours after taking the colchicum. The post-mortem examination yielded negative results. The stomach was a little more congested on its posterior border than usual; the intestines were normal throughout; the contents of the stomach did not give the reaction for colchicin. The right border and the apex of the heart contained a number of hæmorrhagic markings, and there were slight effusions of blood between the muscle-bundles. Similar changes have been found in other cases of colchicum poisoning. (*Med. News*, Philadelphia, April 28, 1894.)

Chronic Arsenical Poisoning.—At the Société Médicale des Hôpitaux, the following case was shown by M. Mathieu : A., aged 50, had for about twenty years taken three to four centigrammes of arseniate of sodium daily. In 1883 he increased the dose, and he now suffered from all the symptoms of arsenical poisoning. There was marked pigmentation of the skin; hyperkeratosis of the palms of the hands; irregularity, deformity, and channelling of the nails; atrophy of the muscles of the legs, with total loss of power in them; and some hyperæsthesia of the sole of the right foot. M. Mathieu was inclined to think that the symptoms were due to a peripheral neuritis. (*Progrès Médical*, vol. i. p. 244, 1894.)

Mycosis Fungoides.—M. Roux, resident physician at the Lyons hospital, showed at the Société des Sciences Médicales, for M. Polosson, a case of multiple cutaneous tumours over the scapula and humerus. The age of the patient, a gardener, was 45; his mother, æt. 72, had had a tumour in the palm of the hand, most probably sarcomatous. Except typhoid fever at 23, he had had no illness. Fourteen years ago he was badly hurt on the left shoulder, and according to his own account the ecchymosis remained for two years. Then a small tumour appeared on the site, which gradually increased. Almost at the same time similar tumours appeared around, which soon disappeared, giving place to others. These have continued to increase in number and size until now. Only in the last two

years has ulceration taken place. In the last six months one of these tumours has increased rapidly, has ulcerated, and is as big as a large orange. There are twenty-five to thirty of these tumours, varying from the size of a hazel nut to that of a large orange; some are soft in consistence, others hard. In some places the skin over them is thin, in others smooth, stretched, and covered with scales; in some places horny and thickened; and over two or three of the tumours ulcerated. This ulceration is superficial, and is due to friction of the clothes. The swelling characteristic of mycosis fungoides, pointed out by Hallopeau, is not present; rather the appearance is of the pale granulations which he has described and compared to tuberculous granulations. There are no granulations in the armpit—a curious fact, especially in regard to the sources opened to infection by the ulceration. Nothing else is revealed by a general examination of the patient; there are no enlarged glands. The tonsils are not hypertrophied. The spleen is normal. The general health is good. So far M. Polosson's diagnosis was mycosis fungoides. However, histological examination has shown it to be a case of spindle-celled sarcoma. Still the histological diagnosis of spindle-celled sarcoma is not incompatible with the clinical diagnosis of mycosis fungoides. If we eliminate the single and melanotic sarcomas, there remain two described types of cutaneous sarcomas. In one of these the tumours are subcutaneous and not cutaneous; these do not concern us here. Thus the diagnosis of mycosis fungoides is strengthened, or (if it be preferred) of cutaneous sarcoma simulating mycosis. Finally, if this diagnosis is not controverted, the observation will prove important, because in the recorded cases, hitherto, the sarcoma has been round-celled, and so is difficult to distinguish from lymphadenoma and from lymphosarcoma. Here no such confusion can exist, for the growth is a spindle-celled one. (*Lyon Médical*, vol. i. p. 163, 1894.)

Variola and Varicella.—M. André Martin relates that two sisters, after travelling from Paris, came to reside in a house where several of the inmates were suffering from varicella. The elder sister at once contracted the affection, whereas the younger, a few days later, showed unmistakable symptoms of variola—namely, confluent pustules, distributed over the whole body, but more marked on the hands and face. Finally, a month later, the father and another sister, who had attended the invalids during their sickness, were seized with varicella. Investigation proved that neither disease existed epidemically in the town at the time, and that its spread was confined to one house and one family. (*Journal de Médecine de Paris*, vol. i. p. 121, 1894.)

Death after Injection of Cocaine into the Urethra.

—At the Paris Société de Chirurgie the following case was described. X., aged 72, suffering from arterio-sclerosis and occasional attacks of angina, was troubled with an enlarged prostate and consequent retention of urine. The catheter was employed, but to no purpose, and finally the bladder was punctured. Before catheterisation was again tried, fifteen to twenty grammes of a five per cent. solution of cocaine were injected into the urethra. The patient immediately turned pale, vomited, became tremulous, and fell dead. It was pointed out by M. Reclus, who reported the case, that the dose given was much too large. M. Reclus purposely suppressed the name of the gentleman in whose practice the accident occurred. (*Progrès Médical*, vol. i. p. 224, 1894.)

Cyst of the Cerebellum.—Drs. Hughlings Jackson and Risien Russell record a case of this nature, their main object being to emphasise a point in the symptomatology of cerebellar disease to which little attention has been paid. There is evidence of paresis of the trunk-muscles, which they believe to be a direct result of the structural damage to the cerebellum produced by the cyst. The case also exemplifies a mode of dying in cases of intracranial tumour first pointed out by Dr. Hilton Fagge—death by failure of respiration. Drs. Hughlings Jackson and Russell submit that the evidence of paresis of the trunk-muscles in this case is fairly conclusive. That the abdominal muscles, the flexors of the spine, shared in the defect was evidenced by the fact that when placed flat on his back the patient was unable to sit up without the aid of his arms. That paresis of the trunk-muscles is an early feature of such lesions of the cerebellum has long been insisted on by Dr. Hughlings Jackson. (*Brit. Med. Journ.*, vol. i. p. 393, 1894.)

Treatment of Hepatic Colic complicated with Pregnancy.

—In the case of a patient, *æt.* 32, four months pregnant, and the subject of hepatic colic with jaundice, hepatic congestion, and a temperature of 102.2 F., M. Galliard recommended the following method of treatment. He first of all relieved the colic by a subcutaneous injection of hydrochlorate of morphine, used six wet cups over the right hypochondrium, washed the wounds with tepid boracic lotion, and then applied an anodyne liniment, covering the place with a pad of wadding. To relieve the vomiting he forbade all solid and liquid food, allowing iced Vichy and seltzer water flavoured with essence of peppermint. He also prescribed a tenth of a grain to a third of a grain of hydrochlorate of cocaine in chloroform water. His next step was to allay the symptomatic fever of biliary absorption, and to relieve the painful spasm due to the calculus. To

produce these effects he administered salicylate of sodium. Lastly, to aid the expulsion of the calculi, later on, he continued the use of the Vichy water, prescribed an appropriate diet, and recommended the patient not to go to Vichy until after her confinement. (*Lyon Médical*, No. 11, p. 378, 1894.)

Suppurative Otitis Media: Carotid Aneurism.—Mr. F. Marsh reports the case of a woman admitted with a swelling in the region of the left ear and upper part of the left side of the neck. This was a tense, circumscribed, pulsatile swelling of an oval shape, measuring $3\frac{1}{2}$ inches in the vertical and 3 inches in the horizontal direction. The swelling was diagnosed as an aneurism of the internal carotid caused by an extension of middle ear inflammation to the coats of the vessel. The common carotid was ligatured, and pulsation ceased, but returned feebly in a few minutes. Two months later the swelling was reported as harder and smaller. It seemed to vary a little in size, being always smaller at night. (*Birm. Med. Journ.*, p. 91, 1894.)

Iritis and Erysipelas.—M. Garjet showed before the Société des Sciences Médicales of Lyons a case of a man, *æt.* 46, of rheumatic but not syphilitic history, with iritis of a year's standing not amenable to treatment. After the application of leeches to the temple he had an attack of facial erysipelas, which produced a cure of the iritis. This happy effect of erysipelas, so well known in surgery, is little met with in ophthalmology; this is only the fourth published case. (*Lyon Médical*, No. 9, p. 301, 1894.)

Laparotomy for Tubal Pregnancy.—S. B., aged 34, was admitted into hospital under the care of Dr. Treub, of Leyden. She menstruated last in February 1893. Since then she had had much abdominal pain. Some days before her admission, in September 1893, she began to lose blood by the vagina. A diagnosis of tubal pregnancy was made, and she was sent into the hospital. On admission, the diagnosis was clear; the foetus was felt on the left side of the abdomen; a soft body, thought to be an enlarged uterus, was present on the right side. The child was living. It was determined to keep the patient quite at rest, and not to interfere, if possible, till term. On the 15th of October, however, the patient was in great distress, suffering from intermittent pains resembling those of labour. It was decided that immediate operation was necessary. The uterus having been examined and found empty, an incision in the middle line was made. There was no fluid in the peritoneum. The child was found living and free, without a membrane of any kind surrounding it, in the abdominal

cavity. It was seized by a knee, and the cord was cut and given to an assistant. The tumour to the right of the middle line was now examined, and found to have an opening as large as the palm of the hand in it. It was adherent to the abdominal wall and to the intestines by easily broken-down adhesions. It was found that there had been an interstitial pregnancy, and the right tube had ruptured. The tumour contained the placenta. The tube was ligatured and supra-vaginal amputation of the uterus performed. The mother recovered without a bad symptom. The child died some days after the operation. (*Journal de Médecine de Paris*, p. 170, 1894.)

Cancrum Oris in Typhoid Fever.—Dr. H. T. Bewley records the case of a boy of 14 who had suffered from a severe attack of typhoid fever. A black patch was noticed inside the right cheek on the forty-first day, and two days later another black patch was observed inside the left cheek. The former was accompanied by much hardness and swelling of the cheek, and eventually involved the skin. Then the gangrene ceased to spread, and the patient made a good recovery without surgical interference. The slough on coming away left a large cavity inside the cheek, extending from near the angle of the lips to the ascending ramus of the jaw. Dr. Bewley calls attention to the rarity of cancrum oris in typhoid fever, and to the high mortality which occurs in it. (*Medical Press and Circular*, vol. lvii. p. 169, 1894.)

Pulmonary Sequestrum in Phthisis.—Kroenig recently showed before the Berlin Medical Society a specimen of necrosed tissue found in sputum which came from the lung of a patient in whom phthisis was considered to be cured. The patient was 33 years old, and had good health until February of this year, when he complained of pain in the left side of the chest, cough, and high fever. After several days these lessened, and the amount of sputum increased and contained numerous tubercle bacilli. Dulness over the left apex with rough breathing and crepitation was made out, and the patient was sent to Davos, where he stayed ten weeks. His general condition had wonderfully improved, the weight increased seventeen pounds, and he soon resumed work. Examination of the chest showed retraction of the supraclavicular fossa, over which dulness was absolute; the respiration was more of a mixed character; there was little cough, confined to the morning, slight mucous expectoration being all that was ejected. The sputum was collected for three days and examined. It contained a small yellowish-grey mass about the size of a hemp-seed and of fatty consistence. Examined histologically, it showed a ground substance, in

parts coarsely and elsewhere finely granular, in which were seen isolated cell-nuclei, fatty droplets, some fatty and otherwise degenerated epithelium, and, what was of most importance, a network of elastic tissue which displayed clearly the alveolar structure. Bacteriologically no tubercle bacilli were found. In discussing the origin of this piece of tissue, Kroenig remarks that the most common form of tissue necrosis met with in phthisis is caseation either in the tuberculous nodule or in the inflammatory exudation surrounding, to both of which the bacillus gives rise. In this there is of course a large number of bacilli to be found. With regard to the sequestrum in question, he believed that, coming as it did from a case where the tuberculous process had healed, tubercle had nothing to do with it, but rather that in the course of cicatrization interference with the blood-supply through a small blood-vessel took place, either by endarteritis or pressure, and anæmic necrosis set in, the sequestrum being expelled through one of the smaller bronchi. (*Berlin. klin. Wochenschr.*, No. 24, 1894.)

Complicated Case of Jacksonian Epilepsy.—Pitres describes a case of this affection which occurred in a young man of 24. No special history could be elicited. The attacks took place every morning before rising, and were preceded by a short aura. Thereupon the right leg became affected, and the cardiac pulsations painfully rapid. The whole attack lasted about ten minutes. While the patient was under observation during the following eighteen months, the above was fully confirmed; and it was also noticed that an exacerbation took place every fifteen or twenty days, at which times almost the whole of the right side was affected. With the exception of some optic neuritis the organs and functions were healthy. The attacks always appeared to emanate from a particular painful portion of the right lower extremity, and no cry accompanied the onset. The paroxysmal tachycardia is by the author regarded as having been part of the epileptoid attack, and as having originated from a cortical lesion which in this case was diagnosed as a cerebral glioma. Various treatments were resorted to, but absolutely without success—namely, mercury, iodides, a mineral water cure, blisters, bromides, and belladonna. On the whole, the attacks are now said to be becoming more severe, and the necessity of an early operation is foreseen. (*Archives Cliniques de Bordeaux*, p. 97, 1894.)

Bone Marrow in the Treatment of Pernicious Anæmia.—Dr. Fraser communicated at the International Congress in Rome the case of a gardener, aged 60, who was admitted into the Royal Infirmary at Edinburgh on September 30, 1893, with frequent vomiting and diarrhœa,

œdema of the feet and ankles, moderate and irregular pyrexia, dimness of vision, retinal hæmorrhages, anorexia, dyspnœa, and complete prostration. The duration of his illness was four months. For two weeks no medicinal treatment was adopted, and it was found that the hæmocytes ranged from 1,460,000 to 1,860,000 per cubic mill.; the hæmoglobin from 28 to 30 per cent.; and the specific gravity about 1,038. During the next three weeks and a half he was treated with iron—at first alone, afterwards combined with arsenic. The hæmocytes fell to 843,000, and the hæmoglobin to 18 per cent., the specific gravity remaining at 1,036. Then for three weeks, in addition to the arsenic and iron, he was given three ounces of ox bone marrow, raw, by the mouth daily. At the end of this period his appetite was improved, and he was regaining strength. The hæmocytes were now 1,800,000, the hæmoglobin was 35 per cent., and the specific gravity was 1,042. Then for twenty-six days he was given ox bone marrow with arsenic and salol (15 to 30 grains daily). After this he had almost lost his yellow colour, and his complexion was distinctly pink. The hæmocytes rose to 2,470,000, the hæmoglobin to 55 per cent., and the specific gravity to 1,047. For the next thirty days he took ox and calf bone marrow and salol (30 grains daily). At the end of this period the patient was able to do light work in the ward; the alimentary system was perfectly healthy; the œdema, pains, headache, pyrexia, and venous bruits in the neck had disappeared; and the skin had a healthy appearance. The blood flowed readily from a puncture, and had a healthy appearance; the red corpuscles formed good rouleaux, and were more uniform in size; the hæmocytes were 3,400,000, though they had been as high as 4,130,000; the hæmoglobin was 70 per cent., and the specific gravity 1,058. The patient was kept under treatment for nearly three months more, during the last month of which only bone marrow was given; and when he went out to go back to work, at his own urgent wish, the hæmocytes were 3,900,000, the hæmoglobin was 78 per cent., and the specific gravity was 1,058. (*Brit. Med. Journ.*, June 2, 1894.)

Double Primary Cancer.—M. Courmont reported the microscopical examination of the tumours in a case of double cancerous growths (*Practitioner*, April 1894, p. 281). The œsophageal tumour proved to be a case of squamous-celled epithelioma, while the tumour of the ampulla of Vater was found to be a case of cylindrical-celled carcinoma. It was manifestly, then, a case of double primary cancer. As was then shown, there are not more than ten such cases actually proven. (*Lyon Médical*, No. 15, p. 516, 1894.)

Extracts from British and Foreign Journals.

Treatment after Tracheotomy.—Guelpa after tracheotomy irrigated the larynx and trachea of a child suffering from diphtheria at hourly intervals with considerable quantities of a solution of perchloride of iron of 1 in 1000. Not only was the patient's head considerably lowered during this procedure, but during the intervals also both trunk and lower extremities were for some days kept at a slightly higher elevation. This position was easily tolerated, and is believed by the author to have been efficacious in preventing the occurrence of broncho-pneumonia. Violent and explosive cough is thus alleviated, the strength of the patient is spared, and the mechanical extension of the malady rendered less probable. (*Progrès Médical*, vol. xviii., No. 51, p. 486, 1894.)

Action and Uses of Piperazine.—Dr. D. D. Stewart, writing on the influence of piperazine on the urine, records his experience of large doses of this substance—a drachm or more daily—as he considered that only in such amount could benefit be expected, if any was to be obtained, in chronic multiple arthritic enlargement of presumably uratic origin. He found that marked toxic effects occurred, and that these varied according to the hygroscopic property of the piperazine employed. Dr. Stewart accordingly recommends salts of piperazine rather than the base as the more stable. (*Therapeutic Gazette*, p. 86, February 15, 1894.)

Modern Hypnotics.—Hypnone, one of the newer drugs, is said by Dr. Bardet to have a special hypnotic effect on nervous subjects who are insensitive to some of the other and truer narcotics, and thus has proved of value in the insane and with alcoholics. Whilst it is very energetic in action, no effects are produced on the digestive or excretory tracts. The remaining modern hypnotics Dr. Bardet divides into two groups. The first group comprises the oily ethers, a few of which are the acetate, nitrate, and tartrate of ethyl and valerianate of amyl, which all by inhalation alone will produce a marked action.

Urethane, while also an ethyl carbamate, is less powerful; but all produce a rapid though only transitory effect, sleep being broken by any disturbance, and a large dose leading to a condition approaching general anæsthesia. The sulphonals—namely, trional, tetronal, and others—are also ether compounds; but their action continues even after sleep has ceased, though without producing excitement or digestive trouble. The second group comprises the aldehyde derivatives—namely, paraldehyde and methylal. The latter has not met with much favour, though the author discovered in it many good properties—namely, rapidity of action, short effects, and no disturbances on waking, its only disadvantage being its irritating properties. As regards chloral and its group, which comprises chloralamide, chloralammonia, chloralimide, chloralose, hypnal, somnal, and ural, the author, after comparative researches on man and animals, found no difference in their respective hypnotic actions. The doses of them, however, vary, as also their after-effects, according as the chloral is fixed in a non-irritating substance. Also, it must be remembered that, like hypnal, which contains antipyrin, they all possess a double effect. In conclusion, hypnone is useful in cases of light insomnia; sulphonals and its allies in persistent sleeplessness; chloral and its allies where pain exists; and bromides only possess an indirect action. (*Journal de Médecine de Paris*, vol. vi., No. 6, p. 64, 1894.)

Antidote to Morphine.—The fact that permanganate of potassium is the best chemical antidote to phosphorus poisoning, and that this influence of the salt, according to Dr. Thornton, is exercised through its powerful oxidising properties, has been turned to good account by Dr. Moor, of New York, who has demonstrated on animals and himself that as much as three or four grains of the sulphate of morphine can be taken internally provided a similar or double number of grains of the potassium permanganate are swallowed at the same time or very shortly after. It is hoped that the accuracy of this statement will be confirmed, and that this remedial measure will be placed on a definite basis. (*Therapeutic Gazette*, p. 93, February 15, 1894.)

Seborrhœic Eczema.—Unna in a recent monograph discusses at length the peculiarities of seborrhœic eczema, an affection to which he was the first to direct special attention. He enumerates the following as its pathological characters: (1) parakeratosis of epidermis; (2) epithelial proliferation; (3) inflammation of the corium, variable as to depth; and (4) augmentation of the fatty secretion of the skin, together with increased activity of the sweat-glands. The disease is microbic in origin; and Unna believes that he has defined two species of

organisms, the flask-bacilli (Malassez's spores) and the morococci, the former being found chiefly in the crusts and scales of the scalp, the latter in the scales of the body, especially if moist. As regards its clinical character in typical cases, the scalp is first attacked, and the disease usually occurs between the ages of twenty and thirty. When the hairless regions are involved, the diagnosis is not so easy, but the sternal and interscapular regions are favourite localities. Cleansing the patches with spirit of soap and the use of ointments of sulphur constitute the best treatments, and they are generally effective in curing the disease, though relapses are common. (*Medical News*, Philadelphia, p. 298, March 17, 1894.)

Treatment of Whooping Cough.—Dr. Variol recommends in the treatment of this disease the following formula, of which a dose should be given in the morning, afternoon, and evening in a little sweetened milk:—

R Potassii Bromidi ʒii.
Tincturæ Valerianæ ʒii.
Aquæ ʒixss. Misce.

To infants, three teaspoonfuls; to children of from two to five years, three dessertspoonfuls; and to children of from five to ten years, three tablespoonfuls. An hour afterwards he gives the same quantity of the syrup of turpentine. This treatment combines the action of the balsams on bronchial secretion by the turpentine, and of the antispasmodics by the bromide of potassium and valerian. When the *râles* in the lungs are general, he administers powdered ipecacuanha in doses of seven to fifteen grains in the morning to cause expectoration of bronchial mucus. He advises that, where possible, children should live in the open air. To avoid serious broncho-pulmonary trouble in winter, change of climate ought to be secured. They ought to be fed frequently, but with small quantities, rich in albuminoids and easily assimilated (eggs, meat-juice, raw meat). Tonic treatment ought to be conjoined, such as the vinum quininæ, or the syrup of the lactophosphate of lime. (*Lyon Medical*, No. 13, p. 454, April 1, 1894.)

Eau-de-Cologne in Coryza.—Roux has found the vigorous inhalation by nose and mouth of eau-de-Cologne, poured on a handkerchief, to be useful in arresting an incipient catarrh of the respiratory passages. Eleven recent and very satisfactory observations have been made in cases of acute coryza accompanied by slight pyrexial tendency. The inhalation, when repeated four or five times during twenty-four hours, each inhalation extending over two to three minutes, produced

complete arrest of symptoms, and the affection appeared to abort. The author attributes the result to the action of the volatile essences. (*Lyon Médical*, vol. i. p. 55, 1894.)

Therapeutic Failures in Eczema.—Dr. Leslie Phillips, of Birmingham, considered that the marked influence of calcium sulphide on the nutrition of the skin in scrofuloderma seemed to justify the persevering employment of it in eczema, and he therefore used it in a large number of cases. In every case the result was disappointing. Ichthyol (in pills) in one or two cases seemed to have some modifying influence, and in one case of relapsing vesicular eczema of the arms and hands the patient believed that the drug was of more benefit than any previously used remedy. The recent reports on the power of calcium chloride to increase blood-coagulability suggested its use in the treatment of vesicular eczema, but it was employed with entirely negative results in a large number of cases. Tartarated antimony has appeared to him to be very helpful in not a small proportion of cases, when given in sensible doses—namely, one tenth to one sixth of a grain thrice daily; and Dr. Leslie Phillips has been in the habit of continuing it for long periods, seldom finding it necessary to discontinue the drug on account of ill effects. (*Brit. Med. Journ.*, vol. i. p. 175, 1894.)

Malakin: An Anti-Rheumatic and Antipyretic.—Jacquet has made numerous experiments with malakin, a substance resembling phenacetin, and formed by a combination of salicylic aldehyde and paraphenetidin. The substance is insoluble in water, and when administered to rabbits, in doses of 15—30 grains, appeared to produce no effect, though its absorption was proved by the subsequent presence of salicylic acid in the urine. Owing to its chemical constitution, the utility of it suggested itself both in cases of acute rheumatism and as an antipyretic in other febrile diseases. Fourteen cases of acute rheumatism were therefore treated with daily doses of 60—90 grains. The pains and fever subsided on the second or third day, under circumstances suggestive of the action of salicylic acid; but without the production of any of its unpleasant after-effects. As an antipyretic it was employed in forty-eight febrile affections. A reduction of temperature took place from the second to the fourth hour after administration; the first two hours probably being required for the reduction of the drug by the gastric juice, and the subsequent absorption of its active elements. In the slowness of its action it occasionally proved of distinct value, as also by not producing the depression of the circulation that may follow the use of antipyrin. As an energetic antipyretic, however, it cannot compare with the latter; and the author considers that the

two remedies are respectively useful in different groups of cases, malakin being especially beneficial in typhoid fever, tuberculosis, &c., where other antipyretics cannot with safety be administered. (*Progrès Médical*, vol. xviii., No. 51, p. 480, 1894.)

Salicylic Acid locally in Myalgia.—Dr. T. H. Manley, of New York, has had marked success in the treatment of muscular rheumatism with the external application of salicylic acid, in the form of liniment, as suggested by Dr. Bouget, of Lausanne. The use of this drug in either acutely or chronically inflamed rheumatic joints, in lumbago, intercostal neuralgia, or sciatica, has proved highly satisfactory. The combination which Dr. Manley employs, and which will keep indefinitely, is as follows: Salicylic acid and laudanum, of each four drachms; chloroform, five drachms; rectified spirit, four ounces; and sweet oil, six ounces. The laudanum and chloroform should be omitted in cases of children. It should be applied warm, and well rubbed in. (*Medical Record*, New York, vol. i. p. 137, 1894.)

Treatment of the Eczema of Infants.—Marfan says that the child should be fed as follows: for the first month it should have the breast regularly every two hours during the day, and twice during the night; for the second and third months, seven times in the day and once in the night; from the fourth to the sixth month, six times a day, once in the night; and during the next three months six times a day. The diet of the nurse must be strictly regulated. For internal treatment Dr. Marfan recommends the use of calomel, in doses of $\frac{1}{8}$ to $\frac{1}{4}$ of a grain, administered once a week or twice in ten days. Locally the affected surface must be kept rigidly clean, and free from crusts and scales, by the use of starch-poultices and washing with a 3 per cent. boric acid lotion; and in cases of impetigenous eczema a very weak watery solution of corrosive sublimate, such as 1 in 10,000, ought to be used. In three or four days this treatment should be stopped, and an ointment consisting of one drachm of oxide of zinc, fifteen grains of sulphur, and half an ounce each of lanolin and vaselin, substituted. In place of the sulphur, resorcin may be used, from five to fifteen grains according to the tolerance of the skin of the patient. Where there is dry eczema in scattered patches in youthful dyspeptics, the digestive troubles must be carefully attended to. The most minute details on the sterilisation of the milk must be given, the degree of dilution, on the quantity of the milk, and the number of times the child should be fed. If there be vomiting, Dr. Marfan washes out the stomach, and irrigates the large intestine with boiled water.

When there is green watery diarrhœa he prescribes paregoric elixir, salicylate of bismuth, or salol. In violent itching the child must be prevented from scratching, either by tying its hands or covering the affected part. If dentition brings on an acute attack, the irritation of the gums may be relieved by touching them with the finger dipped in a solution of cocaine and bromide of potassium. (*La Semaine Médicale*, p. 138, No. 18, March 28, 1894.)

Thyroid Feeding in Graves' Disease.—M. Marie has little faith in the treatment of exophthalmic goitre by the ingestion of the extract of thyroid gland. He does not regard this malady as of thyroidean origin, but attributes it to a nervous cause. (*Medical Press and Circular*, vol. i. p. 253, 1894.)

Mercury Hypodermically in Syphilis.—Eudlitz considers subcutaneous administration of mercury to be of service in syphilis, although he admits it has certain drawbacks. These frequently arise from the possibility of an overdose, from a fault in the preparation used, or from the condition of the individual, renal disease or any form of cachexia being a contra-indication. The advantages, on the other hand, are the rapidity and certainty of action; insoluble preparations being indicated in old-standing cases where a chronic mercurialism requires to be established, the soluble forms where supervision is impossible or the mouth affected. Sozoiodol of mercury can be used in subjects of slight sensibility: it is very active, but apt to produce pain. (*Journal de Médecine de Paris*, vol. vi., No. 3, p. 34, 1894.)

Auto-intoxication and Skin Diseases.—G. Singer attributes much to intestinal fermentation in the production of cutaneous affections, and with a view to treating the consequences of this fermentation prescribes a solution of menthol in olive oil, of the following composition:—

Olive oil	0·25 centigramme
Menthol	0·10 "

This is dispensed in twenty gelatine capsules, six to ten being taken daily, whereby the asepis of the intestine is assured. (*Lyon Médical*, vol. i. p. 136, 1894.)

Diagnosis of the Different Kinds of Meningitis.—Labial herpes is very frequent in epidemic meningitis, whilst its presence in tuberculous meningitis is exceptional. Labial herpes therefore, occurring with meningitis, should be a valuable diagnostic sign in favour of the epidemic nature of the disease; and upon this ground Klemperer has been able to make a

diagnosis of epidemic cerebro-spinal meningitis in three cases in which the majority of the essential symptoms strongly suggested tuberculous disease. In two of the cases the diagnosis was verified by complete recovery, whilst in the third the necropsy showed no trace of tubercle. (*American Journ. of Med. Sciences*, vol. i. p. 231, 1894.)

Treatment of Dysmenorrhœa.—After detailing the remedies usually employed in the relief of minor degrees of menstrual pain, such as antipyrin, phenacetin, codeine, &c., Schwarze remarks that in many cases of obstinate character local treatment is generally necessary. This, however, many patients are unwilling to undergo; and in the case of virgins it is very undesirable that they should be subjected to it. In that event, Schwarze mentions two modes of treatment of some value which have not received the attention they deserve. The first is the gymnastic treatment introduced by Thure-Brandt. It is necessary here to distinguish between dysmenorrhœa in which inflammatory processes are present, and that where they are absent. In the latter class, to which the menstrual pain of most virgins and sterile women belongs, this method is of particular value, whether anæmia or chlorosis be present or not. It is a general treatment of the body, though the movements recommended by Thure-Brandt for this purpose are limited to five, and are carried out chiefly with the lower limbs. These may be conducted at home by the patient's friends. If possible they should be performed daily, and in any case daily for a week before the expected menstrual period. The influence of bodily movement upon the lessening of dysmenorrhœa is shown by the beneficial effect of dancing and riding just before the onset of menstruation. The second remedy that is worth consideration in obstinate cases is the administration of *viburnum prunifolium*. Its action is narcotic, relieving pain and acting more particularly on the uterine nerves, and is of especial value in the non-inflammatory form. It may be given in the form of fluid extract, one teaspoonful three times a day for about a week before the expected period, and during it. It is not unpleasant to take, and is free from after-effects. In dysmenorrhœa associated with inflammatory changes it is of little use. (*Therapeutische Monatshefte*, No. 5, 1894.)

Scurvy in Infants.—Drs. Northrup and Crandall, in a paper on this subject, arrive at the following conclusions: (1) Scurvy may appear at any period of infancy or early childhood, but is most common between the ninth and fourteenth months. (2) The lesions are hæmorrhagic in character, due probably to diapedesis. The most characteristic are subperiosteal hæmor-

rhages. Hæmorrhages into the muscular tissues, into the skin, and into the mucous membranes are more or less constant. (3) It occurs in every grade of the social scale, but is more frequent among the rich than among the poor. The neglected child who eats everything at the table may become rachitic or marasmic, but he obtains enough fresh food to protect him from scurvy. It very rarely occurs in hospitals and asylums, because in recent years feeding in such institutions has been more rational than in many private families. (4) Lack of fresh food is the most important cause. The use of proprietary foods and condensed milk produces more scurvy than all other causes combined. Even fresh milk in small proportions is not sufficient to ensure protection. (5) Anæmia and malnutrition are almost invariably present; a peculiar sallow complexion is common. (6) Scurvy is frequently superadded to rachitis, but in a considerable number of cases no evidences of rachitis are present. So-called acute rickets is in most cases, probably in all, complicated by scurvy. (7) Pain is a constant symptom; it develops early, and is usually intense. (8) A varying degree of immobility of the extremities is common, and is frequently so marked as to simulate paralysis. This pseudo-paralysis disappears with the subsidence of the scorbutic symptoms. (9) Subcutaneous hæmorrhages, as well as hæmorrhages from the cavities of the body, are very common, but are not necessary to a diagnosis of scurvy. (10) The condition of the gums is characteristic. They are purplish, soft, spongy, and bleeding, and frequently show decided ulcerations. When the teeth have not been erupted, changes in the gums are usually slight or entirely absent. (11) Painful swelling of the lower extremities is the most constant symptom; the upper extremities are rarely involved. The thigh is involved more frequently than any other region. (12) Children suffering from scurvy commonly present the following symptoms: Anæmia, intense pain on motion, spongy and bleeding gums, and swelling of the lower extremities—usually at the thigh. There may also be purpura or ecchymoses, discharge of blood from the various cavities of the body, and pseudo-paralysis. (13) Scurvy, when untreated, is a very fatal disease; when it is recognised and properly treated, a rapid and complete cure is usually effected. The result of antiscorbutic treatment is, in fact, one of the most certain means of diagnosis. Scurvy is a dietetic disease, and must be cured by dietetic treatment. Fresh milk, beef-juce, and orange-juice are the most effective remedies. (*New York Med. Journ.*, May 26, 1894.)

Rickets.—Dr. J. Comby, in a paper read before the International Medical Congress at Rome on the relationship between

rickets and infantile convulsions, arrives at the following conclusions: (1) General convulsions (eclampsia) and local convulsions (spasm of the glottis) are tolerably common in rachitic children predisposed by neurotic tendency, whether hereditary or acquired. (2) Rickets cannot by itself, or by its bone lesions—even when they affect the head (cranio-tabes)—afford an explanation of the convulsive phenomena. In fact these often occur in subjects free from cranio-tabes and rickets; moreover, many children (the great majority) affected with extensive cranio-tabes or with well-marked rickets do not present any convulsive manifestation. (3) The explanation must be sought elsewhere. It is to be found in the digestive disturbances which have preceded and accompany rickets. In short, the infantile convulsions of rickets are due to a self-poisoning having its starting-point in the alimentary tract. (*La Médecine Infantile*, April 15, 1894.)

The Value of Piperazine.—This substance, which was introduced by Biesenthal and Schmidt as having a powerful solvent action upon uric acid, has been reported upon by various writers. Many favourable reports of its value in the treatment of gout and urinary calculi have appeared, and its use has largely increased. Sir William Roberts, in this country, has however expressed the opinion that it has little or no effect in the treatment of gouty states; and now we have the recent results of Bohland, which tend to confirm this. He believes that the treatment with piperazine of concretion and calculus formation in the kidneys and bladder of individuals of a uric acid diathesis is quite useless, for calculi already formed can neither be dissolved nor prevented from growing larger. With regard to its influence upon gouty attacks, successful results have been published; but competent observers have seen only decided failure, so that further investigation must be awaited before pronouncing definitely upon the point. In any case it must be a purely empirical treatment of gout: the action of piperazine cannot be referred to the 'power of dissolving uric acid, for there is absolutely no proof that it possesses any property of collecting uric acid deposits and removing them in a readily soluble form from the organism. Indeed, reliable experiments have hitherto shown the contrary. (*Therapeutische Monatshefte*, No. 5, 1894.)

Idiopathic Enlargement of the Heart.—Idiopathic hypertrophy presents itself in the great majority of cases as an enlargement by dilatation, which, because of its tendency to progressive development, possesses a pronounced pathological importance in contrast to the gradual increase of size of the heart-muscle resulting from severe physical exertion. This

latter condition Bauer terms "strengthening of the cardiac muscle." He understands by a strengthened heart a heart which ordinarily works with such an expenditure of energy as the maintenance of a normal circulation renders necessary, but which provides over and above an important reserve of power. The majority of originating causes of the development of idiopathic hypertrophy have this one thing in common, that they sometimes lessen the elasticity of the cardiac wall. This last condition generally involves as a further consequence an hypertrophy of the wall. The most important and commonest cause of the origin of idiopathic hypertrophy is found in excessive indulgence in alcohol, and especially in habitual beer-drinking to excess. If one takes into consideration the frequency of the heart affection in question in Munich, no other plausible explanation for this singular appearance can be discovered, especially as it arises mostly in individuals in the prime of life. Any over-exertion is as a rule only of importance as an occasional cause of hypertrophy in a heart which has already at an earlier period lost its elasticity as the result of overstrained impulse, and has thus become dilatable. But should an idiopathic hypertrophy develop, it may exist for a long time, even in the higher degrees, without notable disturbance of the health and without immediate danger to life. The diseases which are found as a result of excessive alcoholic indulgence often run a singular course; and the more or less acute forms manifest impairment of the heart without distinctive alterations of the muscular fibre. The symptoms of heart-insufficiency arise suddenly in these cases with or without prodromata, and lead sometimes to a fatal issue, even a few days after the commencement of disturbances, occasionally in the way of a very acute cardiac paralysis. Clearly in these cases one may, on account of the disproportion between the anatomical condition and the severe disturbances existing during life, speak of paralysis of the heart. In these patients the mind remains clear till the last breath, and *delirium potatorum* does not occur. The diagnosis depends on marked enlargement of the heart revealed by percussion, and on the displacement of the heaving widely diffused apex beat; and it can generally (in opposition to the view of O. Fraentzel) be definitely established. (*Centrblt. f. innere Med.*, No. 10, 1894.)

Lactophenin.—This new drug, which is both an hypnotic and an anodyne, differs from phenacetin in the substitution of lactic acid for acetic acid. It is soluble in three hundred and thirty parts of water. The dose of it is from eight to sixteen grains three times daily. In small doses it acts as an anodyne, in large doses as an hypnotic, and it is well tolerated by those

patients who cannot take antipyrin. It is strongly recommended by M. Landowski. (*Journal de Médecine de Paris*, vol. i. p. 165, 1894.)

Senecio in Amenorrhœa.—Dr. William Murrell reports his experience with *senecio jacobæa* in the treatment of functional amenorrhœa. He considers that in senecio and its preparations we have a drug which deserves to rank with permanganate of potassium and binoxide of manganese in its power of stimulating the menstrual flow. It is useful in those cases in which the menstrual function, having been performed regularly for some years, has been suddenly suspended as the result of exposure to cold. (*Brit. Med. Journ.*, vol. i. p. 679, 1894.)

Digestive Properties of Iodic, Bromic, and Fluoric Acids.—Hübner, in view of the common belief as to the harmful effects on the digestion produced by the above acids after the administration of their salts, investigated their action in this respect. For the sake of comparison, the experiments were extended to hydrochloric acid also, each substance being used in increasing strengths per 1000, and in the presence of a preparation from the gastric mucous membrane of a pig. At the termination of each investigation the nitrogen was quantitatively estimated by Kjeldahl's method. As the result, hydrofluoric acid gave the best figures when used as a 4 per 1000 solution, a strength of 6 per 1000 giving the highest result when hydrochloric acid was used. Again, whereas the former proved the more effective in the weaker preparations, the latter showed greater powers when higher strengths were reached. The two other acids also showed marked digestive properties, but proved inferior to hydrochloric acid. A detailed description of all the experiments is given, showing that hydrofluoric acid possesses more powerful digestive properties than the others, hydrochloric acid ranking second. (*Fortschritte der Medizin*, p. 163, 1894.)

Asaprol.—Asaprol is the sulphuric ether of beta-naphthol in the form of a calcium salt. This substance is exceedingly soluble, and its antiseptic equivalent is more or less that of the salicylate of sodium. Asaprol is rapidly eliminated by the kidneys, yielding a bluish-black coloration on the addition of perchloride of iron to the urine. MM. Dujardin-Beaumetz and Staskler have administered the drug in doses of fifteen to 150 grains in a variety of disorders, such as influenza, various typhoid states, certain asthmatical seizures, and acute and sub-acute polyarticular rheumatism. As an analgesic it was found serviceable in various neuralgic conditions, such as dental

neuralgia and intercostal neuralgia. In doses of about ninety grains it has produced in the acute and subacute types of multiarticular rheumatism as good results as the salicylate of sodium. The writers believe that neither the dyspeptic state nor renal disease, particularly those cases that prove rebellious to treatment by the salicylates, constitutes a contra-indication to the employment of asapol in the doses mentioned. (*Therapeutic Gazette*, vol. i. p. 99, 1894.)

Hæmin Crystals from Bloodstains mixed with Rust.—Dr. Jonathan Becker says it is well known that hæmoglobin changes into hæmatin and a proteid body in the course of time, and this decomposition can be produced more quickly by the action of heat, acids, plenty of water, &c. ; also, under favourable circumstances, it loses its iron, and undergoes further changes. Hæmatin, in the presence of iron rust, cannot lose iron, so that it cannot undergo further changes, but it forms a rather insoluble connexion with it ; hence iron rust may be regarded as a preservative agent, and it is only necessary to select a proper solvent for the hæmatin, and one which will have no action on iron rust. Dr. Becker finds that the presence of ammonium chloride favours the solution of hæmatin, and that by proceeding in the usual way crystals of hæmin can readily be obtained. (*Brit. Med. Journ.*, vol. i. p. 351, 1894.)

Enucleation for Goitre.—M. Poncet, of Lyons, under the name of exothyropexia, communicated to the Académie de Médecine a new and curious method of treating goitre. The operation consists in enucleating the tumour from its attachments, and fixing it externally so as to provoke atrophy. M. Poncet had practised the operation successfully in fourteen cases. In these cases medical treatment had failed to improve the patient's condition. Five of the growths were parenchymatous, while the remaining nine were cystic. (*Medical Press and Circular*, vol. lvii. p. 173, 1894.)

Treatment of Ménière's Disease.—Charcot strongly recommended prolonged treatment by increasing doses of sulphate of quinine. It has most marked effect in stopping the distressing tinnitus. (*Progrès Médical*, vol. i. p. 223, 1894.)

The Slow Heart of Convalescence.—Dehio has already shown in an earlier work that atropine is a means by which one can distinguish a bradycardia as cardiac or extra-cardiac, and whether it depends on an injury to the motor apparatus of the heart or to an excitation of the vagus on the one hand, or to paresis of the sympathetic on the other. From the obstinate resistance of bradycardia to atropine in severe chronic heart affections he has recognised the affection as cardiac. An

analogous research in regard to the transient bradycardia of convalescence from infectious diseases has yielded a number of interesting and important results. The bradycardia of convalescence is not an independent symptom, but is constantly accompanied by other cardiac disturbances, which present the picture of weakened heart. This fact follows, moreover, from the earlier researches of Riegel, who also observed irregularity of the pulse in bradycardia. The experiments with atropine showed that the action of this drug was less pronounced in all cases of a normal type, from which it seems to be demonstrated that the bradycardia is cardiac in origin, and is to be regarded in connexion with other symptoms as an expression of weakness of the heart. Dehio attempts to establish the same in an analogous way as the heart-insufficiency of experimenters following on increase of blood-pressure, in which, moreover, bradycardia was now and then observed. There is further, in favour of this analogy, the association of bradycardia with arrhythmia. Whether this relative cardiac insufficiency of convalescence is the expression of myocarditic changes or the result of toxic influence must still remain an open question. (*Deutsches Archiv f. klin. Med.*, vol. lii., No. 4, 1894.)

Pseudo-Hypertrophic Paralysis.—Madame Dr. Sacara Tulbase, in some observations on pseudo-hypertrophic paralysis, comes to the conclusion that muscular weakness, and not change of volume in the affected parts, is the important consideration in these cases. This weakness is of insidious onset, starting in infancy, difficult to recognise, and of widespread distribution. She shows that implication of the extensors, with a widespread area of weakness, is sufficient to account for the attitude and frequent malformation of the patient. She regards the disease as only part of a general perversion of nutrition, a view she takes as proved by the greater number of her cases showing deficiency of intelligence, and various abnormalities of bodily structure. (*Revue de Médecine*, p. 306, 1894.)

Feeble Physiological Respiration on the Right Side.—Doctor Moncorgé has tabulated twenty cases of feeble respiration in the right lung in patients not the subject of lung diseases. In every case he found that the habit of sleeping solely on the right side had been contracted; consequently he argues that the right lung is not properly expanded during eight out of the twenty-four hours, with the result that breathing is naturally feeble throughout that organ. Fourteen of his cases occurred in women; and this he explains by the facts that (1) women's breathing is chiefly thoracic, and that naturally more stress would fall on the compressed right lung than if it were chiefly diaphragmatic; (2) women's dress tends to compress the lungs

more than men's; and (3) the occupation of women being sedentary, the lung has less chance of expanding than it has in men, in the daytime. He further found that under appropriate exercises the vesicular murmur on the right side became equal again to that on the left. (*Lyon Médical*, vol. lxxv., No. 16, p. 533, 1894.)

Tubercular Disease of the Tonsils.—Dr. Tassan, in a paper on this subject, points out that though little is known of the action of the secretion of the tonsil, it is extremely probable that it is antiseptic in its properties, like the saliva. He then lays stress on the fact that any constant irritant, such as tobacco or alcohol, is liable to interfere with the secretion of the tonsil, and points out that in three cases of tuberculosis of the tonsils, which he cites, there was a very well-marked history of excessive indulgence in both these drugs. The only treatment he found of any use was that by the galvano-cautery. (*Lyon Médical*, vol. lxxv., p. 541, 1894.)

Dicrotism of the Pulse.—Dr. Ed. Chrétien discusses many theories for the production of the dicrotic wave of the pulse, and shows that it is the more marked the lower the arterial tension and the sharper the pulse-wave. He points out the influence of pathological conditions, more especially of fever, in bringing out dicrotism—a result chiefly due to diminished blood-pressure. He cites the observations of M. Bouchard, who has declared that in typhoid fever marked dicrotism may foretell intestinal hæmorrhage, and explains that this may be due to the re-establishment of a higher arterial pressure, together with an enfeebled systole, in the latter part of the fever. These conditions, he avers, are favourable both for visceral blood-stasis, rupture of a weakened artery and poly-crotism, the latter being mistaken by the finger for dicrotism. To lower this arterial tension he does not recommend either bleeding or purgation in a case of typhoid. (*Revue de Médecine*, vol. i. p. 325, 1894.)

Poisoning by Chloralose.—M. Thouvenaint read a short account of the toxic symptoms produced by chloralose observed in two patients, the one suffering from diabetes, the other from uterine fibroid. The dose administered was six grains, and was taken from a specimen which he had been using for the last year, showing that the purity of the drug was not involved. The symptoms were trembling, starting, nausea, vomiting, a species of dull restlessness accompanied by incoherence, and involuntary evacuation of urine and fæces. [*Practitioner*, vol. i. p. 214, and vol. lii. p. 98.] (*Progrès Médical*, No. 19, p. 344, 1894.)

Notes and Queries.

CASCARA JELLY.—We have much pleasure in directing attention to Cascara Jelly as prepared by Messrs. Harker, Stagg, and Morgan. It is a very elegant pharmaceutical preparation, possessing all the medicinal aperient properties of the cascara whilst being free from the peculiarly bitter nauseous taste of the drug. When it is remembered how difficult it is to render palatable many of our nauseous drugs, whilst at the same time preserving their medicinal activity, those who try the Cascara Jelly cannot fail to approve of its agreeable fruity flavour. It fulfils all the properties of the less elegant official liquid extract, and will prove an acceptable aperient for delicate children and ladies.

OPHTHALMIC TABLOIDS.—Messrs. Burroughs and Wellcome have produced a neat and portable case, containing a little dropper for instilling ophthalmic solutions, a glass pestle and mortar, and a simple instrument for introducing into the conjunctival sac their ophthalmic tabloids. These last are minute discs, with a soluble unirritating basis charged with definite minute doses of the several alkaloids and other remedies used for local application to the eye. Some of these are combined with cocaine, so as to give an anæsthetic effect in addition to the mydriatic or medicinal one desired. Tabloids of boric acid and mercuric chloride are also provided, by means of which extemporaneous solutions for disinfecting purposes may be readily prepared. The little case should prove a valuable aid in general practice.

Prescriptions.

FOR OBSTINATE THRUSH IN CHILDREN.

R Zinci Chloridi gr. ij.

Aquæ ʒvj.

Solve.

To be applied locally.

FOR THE VOMITING OF PREGNANCY.

R Menthol gr. xl.

Olei Amygdalæ ʒiij.

Solve.

Six to ten drops on a lump of sugar.

FOR ALOPECIA AREATA.

R Aceti Cantharidis ʒj.

Unguenti Hydrargyri Oxidi Rubri ʒj.

Misce et fiat unguentum.

To be applied to the affected parts twice daily.

A PIGMENT FOR WARTS.

R Acidi Salicylici gr. xv.

Acidi Lactici ℥xv.

Collodii Flexilis ad ʒij.

Misce et fiat pigmentum.

To be applied morning and evening.

A COOLING LOTION FOR PRURITUS.

R Liquoris Ammonii Acetatis ʒij.

Acidi hydrocyanici diluti ʒj.

Spiritus Rectificati ʒiij.

Aquæ Rosæ ad ʒviij.

To be applied locally.

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Department of Public Health.

MEMORANDUM ON CHOLERA AND PROFESSOR HAFFKINE'S ANTI-CHOLERAIC VACCINATION.

*Presented to the Commissioners of the Municipality of Calcutta
by their Medical Officer of Health, DR. W. J. SIMPSON,
May 14, 1894.*

TEN years ago Professor Koch visited Calcutta for the purpose of ascertaining whether the microbes which he had discovered in the intestinal discharges and intestines of cholera patients in Egypt were also to be found in cholera patients in India. I was in Egypt at the time of the discovery, inquiring into the cause of the spread of cholera from another point of view, and I remember the sensation created in that country. This was all the more profound, for Professor Koch was already well known for the brilliancy of his work, and the thoroughness with which every undertaking was accomplished. I need not enter into the details of his work in Calcutta; they are well known to the Commissioners. Suffice it to say that Professor Koch was able to confirm in every respect his previous observations in Egypt, and to satisfy himself that the *comma bacillus* stood in a very intimate relationship with the production of cholera. An English Commission was sent out to Calcutta to inquire into this discovery, and, though unable to indorse Dr. Koch's view that the *comma bacillus* was the cause of cholera, the members affirmed that this microbe was intimately connected with cholera cases. Investigation made in Calcutta in the Government laboratory during the past ten years has led Professor Cunningham to confirm this view of the Commission.

By the time Dr. Koch had returned to Germany, cholera had broken out at Toulon in France, and there again he was able to demonstrate the presence of the *comma bacillus* in cholera patients. His co-worker in Toulon was Dr. Roux, who had been one of the members of the French Commission from Pasteur's laboratory which had visited Egypt in 1883, and who, from the shortness of duration of the epidemic, were unable to complete their investigation and to discover any micro-organism of a special kind in the cholera patients examined. Dr. Roux therefore went to Toulon as a most competent and experienced opponent of Dr. Koch. The searching investigation, however, which he then made with Dr. Koch completely satisfied him of the value of the discovery, and from that time the *comma bacillus* has been acknowledged in Pasteur's laboratory as the real infective cause of cholera. Since then, wherever cholera has appeared, researches have shown the *comma bacillus* to be invariably present.

An accident which occurred in Professor Koch's laboratory confirmed his views, and demonstrated in a positive manner that the microbe was the infective causal agent of cholera. A doctor in attendance on the course of instruction given at the Berlin laboratory to medical men, for the cultivation of *comma bacilli* for diagnostic purposes, became affected with diarrhœa, which developed later on into an attack of cholera. He had rice-water stools, suffered from great weakness, unquenchable thirst, almost complete suppression of urine, and spasmodic contraction of feet and toes, with shooting pains in the feet. His discharges were examined by Dr. Koch, and found to contain *comma bacilli*. No case of cholera existed in Germany at the time; the doctor had previously been handling and cultivating *comma bacilli*, and the evidence points to his having become infected with this microbe. The patient fortunately recovered.

On the other hand, some observers have swallowed *comma bacilli* and have been none the worse. This is, however, in accordance with the fact that not every one exposed to the infection of cholera is attacked, and one affirmative case is evidently more valuable than many negative. Professor Pettenkofer, the well-known hygienist of Munich, who is opposed

to the view that the microbes are in themselves the sole cause of cholera, swallowed some of the *comma bacilli*, and was taken very ill with colic pains and rice-water purging. His assistant, Professor Emmerich, also tried the same experiment, and suffered to the extent that he was purged eighteen times in one day, and his illness, like Professor Pettenkofer's, lasted several days. Professor Pettenkofer pointed out that these experiments were a confirmation of the view that the *comma bacilli* are the true infective agent of cholera, while at the same time he believed that the experiment proved that local conditions and predisposition of the individual were also necessary elements in the production of fatal cholera.¹

After the experiment of Professor Pettenkofer, Professor Metschnikoff, in the Pasteur Institute, interpreting the result as unfavourable to the *comma bacillus* being the causal agent of cholera, instituted a series of experiments with the object of testing the point. In these experiments one of the men who swallowed the microbe was affected with such a characteristic attack of cholera that Professor Metschnikoff was forced to abandon his position, and acknowledge unreservedly that the relationship could no longer be doubted.

In the meantime researches were being made to discover a method by which a "vaccine" could be prepared that would protect the body against the poison elaborated by the *comma bacillus*. The preparation of vaccines against infectious diseases is one of the problems exercising the minds of medical scientists of the day. Begun a century ago by Jenner in his discovery of vaccination and its protective influence against small-pox, a great impetus was given to the subject by M. Pasteur in his discovery of vaccines against chicken cholera and against anthrax—a fatal disease affecting the cattle of France. M. Pasteur was able to demonstrate the efficiency of his vaccine in a manner that can only be employed on the lower animals. At Pouilly-le-Fort, in the midst of an assemblage of scientists, representatives of scientific societies, Government officials, landlords, farmers, and representatives of the press, he performed the

¹ For an account of these experiments see *Some reflexions upon the more recently expressed views of von Pettenkofer concerning the Causation of Cholera*, by Surgeon-Captain R. H. Firth, A.M.S.—PRACTITIONER, March 1893.

following experiment: Sixty sheep were taken, ten of these were put aside, twenty-five were vaccinated with the anthrax vaccine, and twenty-five were left untouched. Twelve days afterwards the fifty sheep were inoculated with virulent anthrax, and the next day the twenty-five unvaccinated sheep were dead, while the twenty-five that had been vaccinated were perfectly well, and during the whole time they were kept under observation they presented the same degree of health as the ten sheep that had been put aside for comparison. Subsequent to this remarkable event was the discovery of a vaccine against rabies and some animal diseases, and now follows the discovery by Professor Haffkine of a vaccine against cholera, a discovery made in Pasteur's laboratory, where the preparation of vaccines has been an object of special study.

In nature the virus of infectious diseases, such as small-pox, for instance, is extremely variable, causing at one time a very mild and at other times an extremely virulent disease. In small-pox inoculations, the virus for which was obtained from the natural disease, there was no certainty as to the results. Sometimes a mild form of small-pox was produced, and sometimes a very dangerous form. The method was abandoned when a fixed vaccine against small-pox was discovered in the vesicle produced on the cow.

The problem which therefore had to be solved, in the preparation of a vaccine against cholera, was to find the means of fixing the virus in a well-determined strength, and to be able to keep it for an indefinite time at that known strength. Professor Haffkine solved the problem. He discovered a means of engrafting on animals the cholera microbe and cultivating it indefinitely on such animals. This gave him his vaccine. At the same time he was able to increase the cholera microbes to a strength which produced with certainty a specific infectious disease on animals, and against which he was able to protect them.

By this double discovery Dr. Haffkine, in addition to obtaining his vaccine, was able to show with the *comma bacillus*, as conclusively on animals as M. Pasteur had done with anthrax at the great demonstration at Pouilly-le-Fort, that he possessed a vaccine which would protect animals against a fatal infectious disease caused by the cholera *bacillus*.

For cholera inoculation there are two vaccines, one mild, the other strong. For a complete vaccination it is necessary to inoculate twice—first of all with the mild vaccine, which produces some pain at the seat of inoculation, discomfort, and fever for about one day; a period of five days is allowed to elapse, and then a second inoculation is performed with the second or strong vaccine. This second inoculation produces a similar form of malaise to that caused by the first. The discomfort on the whole is milder and of shorter duration than that of vaccination against small-pox. Its harmlessness was established by very careful and patient observation on medical men and scientists, who were inoculated in Europe soon after the discovery.

It was first proposed that Dr. Haffkine should proceed to Siam, where, by inoculating whole villages, a decision might be come to as to the value of the anti-choleraic vaccinations. After an interview, however, with Lord Dufferin, ambassador in Paris, it was considered that the best country for such an inquiry was the endemic area of Bengal. Lord Dufferin took a great interest in the matter, writing to the Secretary of State for India and to Lord Lansdowne, while the ambassadors Baron de Mohrenheim and Baron de Staal put themselves to much trouble, and recommended Dr. Haffkine and his mission very warmly to the British Government. Dr. Haffkine visited London with the object of having an interview with Lord Kimberley, and explaining his system to the leaders of the medical profession in London. His reception there was of the most cordial nature. I was in London at the time, and met Dr. Haffkine on several occasions. The English Government, through the Secretary of State for India, granted facilities for Dr. Haffkine visiting every part of India, writing to the Government of India on the subject, who in their turn have rendered him valuable assistance. In his mission Dr. Haffkine arrived in Calcutta in March 1893, and some time was taken up in preliminary matters. Cholera was not very prevalent in Calcutta then, for it was an exceptional year in this respect, and Dr. Haffkine consequently accepted an invitation to Agra, where Mr. Hankin, the Government bacteriologist, was anxious he should begin inoculations. In

Agra he inoculated over 900 persons, European and Indian, among whom were a number of European officers, including General Morton, commanding the troops in the Agra division, Mr. Neale, the Commissioner, and others. From Agra he was invited to Aligarh, where he inoculated eighty Europeans and Indians. Once the inoculations were begun, the invitations from different places in Northern India came in so rapidly that Dr. Haffkine has been unable to accept them all. Since his arrival in India he has inoculated about 25,000 persons.

[Here follow lists, 1st, of distinguished Indians who have been inoculated; 2nd, of British medical and other officials, and of Indian princes, &c., who have sent invitations for the introduction of the system of inoculation into numerous places; and 3rd, of medical men who have themselves submitted to inoculation. Dr. Simpson continues:]

I give these lists because they will show the Commissioners that all classes of the population are interested in these inoculations, and the total number done without the slightest mishap having occurred will convince them of the harmlessness of the vaccine.

What will interest the Commissioners still more, however, are the results which have been obtained by the inoculation in Calcutta. This year, as soon as the cholera season began, Dr. Haffkine came down to Calcutta, and in the course of six weeks inoculated over 1,200 persons in different parts of the town where cholera was prevalent. The numbers and the short time since the inoculations are obviously insufficient to allow of definite comparisons being drawn, but one or two remarkable facts which have been observed where the proportion of inoculations in the locality has been larger than in others, and where a small local epidemic of cholera prevailed, arrest the attention. About the end of March two fatal cases of cholera and two cases of choleraic diarrhoea occurred in Kattal Bagan Bustee, in a population grouped around two tanks. This outbreak led to the inoculation of 116 persons in the bustee out of about 200. Since the 116 cases were inoculated, nine more cases of cholera, of which seven were fatal, and one case of choleraic diarrhoea, have appeared in the bustee. *All these ten cases of cholera have occurred exclusively among the not-*

inoculated portion of the inhabitants, which, as stated, forms the minority in the bustee, and none of the inoculated have been affected.

Place.	Number.	Remarks.
Agra	Over 900	Europeans and Indians,
Aligarh	80	ditto.
Jhansi	250	Including a hundred soldiers (Sikhs).
Lucknow	1,200	Which include 497 British Soldiers, 130 Bengal Infantry, 120 Bengal Cavalry, and 250 children, La Martinière School.
Sanawar	250	Indians and Europeans.
Kasauli	220	Indian and European Soldiers.
Dagshai	350	Men of the 93rd Highlanders.
Delhi	880	Which include 500 men of the 36th Sikh Regiment and 50 children of the Mission School.
Simla	400	Europeans and Indians.
Jatog	60	Soldiers of the Royal Artillery.
Patiala	3,400	Which include the family of the Maharajah and 2,400 sepoys.
Sangrur (Jhind State)...	750	Which include 500 sepoys.
Rawalpindi	400	Which include about 250 European Soldiers.
"	370	Followers of Sirdar Ayub Khan.
Murree	370	Which include 300 European soldiers, Mr. Thorburn, the Divisional Commissioner, Ayub Khan, his five children, and his brother.
Abbottabad	850	Which include 130 men of the 5th Goorkha Regiment, 200 men of the 1st Mountain Battery, and 125 of the Bengal Infantry.
Peshawar Valley (Peshawar Chirat and Nowshera).	1,100	Almost exclusively soldiers and sepoys.
Naini Tal	211	Europeans and Indians.
Tour from Naini Tal to Hurdwar through Mussoori.	5,200	Which included at Almorah 250 of the 3rd Goorkhas, at Rhanikhet about 150 British soldiers, at Dehra-Doon 500 men of the 2nd Goorkhas, and 2,200 villagers of the fixed agricultural population.
Lahore and Mian-Miar..	370	Chiefly Europeans.
Sialkote	1,100	Which include 200 soldiers, European and Native.
Pasrur and Seranwali (Sialkote District).	2,200	Which include about 300 school children.
Amritsar	800	
Gujerat	300	
Dhurmala	1,200	Men of the 1st Goorkha Regiment.
Kapurthala	180	Which include 100 of the Rajah's sepoys.
Calcutta	1,200	Chiefly of the fixed bustee population.
Chitagong	930	The European population, Mr. Waller, the Commissioner, native officials and others.

The following facts were observed: In Ramdhun Dutt's house six members, out of eight in the family, were inoculated between March 31 and April 7. On April 9 cholera affected one of the members of the family who subsequently died. This death occurred in one of the two not-inoculated, the six inoculated remaining unaffected.

In Shaik Subratee's house there resided fourteen persons. Two cases of choleraic diarrhœa occurred among them. After this, seven out of the fourteen were inoculated. Since then one case of choleraic diarrhœa has occurred in an adult not inoculated.

In Karam Ali's house, the family consisting of eight members, three were inoculated on March 31, and on May 7 one of the five who were not inoculated was affected with cholera and died.

In Mungloo Jemadar's house a fatal case of cholera occurred on March 29. On the 31st eleven members of the family, out of a total of eighteen, were inoculated. It so happened that cholera, again breaking out in the house, attacking four persons, three of whom died, *selected four of the seven not inoculated*, while the eleven inoculated remained perfectly free.

It is unnecessary to quote instances in other localities where cholera appeared in a house, and seemed to be arrested by inoculation.

The numbers are still too small for any definite conclusions, but they are sufficient to indicate the manner in which this all-important question will be solved. To carry on these observations in Calcutta on a large scale in its most affected parts during the next one or two years would, in my opinion, solve the question, for it is obvious that under these conditions a sufficient number of facts would be collected in Calcutta to determine the amount of protection that can be given by Dr. Haffkine's anti-choleraic vaccine to individuals or communities in an affected locality; and accordingly I recommend the Commissioners to give the system an extended trial.

[In connexion with this communication the reader should renew acquaintance with "Dr. Klein's Experiments as to Anti-Cholera Inoculation," published in the *Practitioner* of March 1894.—Ed. *Practitioner*.]

THE EPIDEMIC OF CHOLERA AT CONSTANTINOPLE IN 1893.¹

BY DR. A. CHANTEMESSE,

Deputy Inspector-General of the Sanitary Services of France.

CHOLERA made its first appearance in Constantinople during the summer of 1831. Coming from Galatz by way of the sea, it ravaged the town, and spread to Moldavia, Walachia, Bulgaria, and Roumelia.

In October 1847 it reappeared. It had its origin on this occasion in Persia, travelling by way of the Caucasus, Trebizond, and the Asiatic coast of the Black Sea. Through the Bosphorus it reached Egypt and Syria.

In 1865 cholera, imported into the Hedjaz by infected arrivals from India and Java, reached Alexandria. In the month of June a frigate carried the disease to Constantinople, where it spread with extreme violence, and led to the death of over 30,000 persons.

The cholera epidemic of 1871 was of less severity than the preceding one, but it claimed a large number of victims, and cost the lives of over 4,000 individuals. The appearance of cholera in the month of August 1893, coming as it did after a complete absence of twenty-two years, inspired the Ottoman Government with legitimate fears, and with a desire to put everything in operation with a view to the recognition of the evil and to the protection of the capital of the empire.

Constantinople is one of those towns of Europe where cholera is able to claim the largest number of victims.

To support this proposition it will not be necessary to enumerate all the defective conditions of public hygiene at Constantinople. It will suffice to indicate the principal ones: the imperfection of the underground sewerage, and the bad quality of the drinking water.

¹ This paper is a translation of one which recently appeared in *La Semaine Médicale*.

The population of the three suburbs—Stamboul, Scutari, Galata-Pera—reaches nearly a million inhabitants. During the season of summer the people eat abundantly of all sorts of raw fruits, and their drink consists in the main part of pure water, or water reputed as such, taken from the different stand-pipes (*fontaines*) by which the town is supplied. The sewers are not numerous, and they are badly contrived; many of them, and these amongst the most important, are in such a state of dilapidation that the Superior Council of Health of Constantinople formerly proposed to make over to the Imperial Government a gift of T£60,000 for the repair of the Kassim-Pacha sewer. This repair has not yet been commenced.

The more immediate danger still lies in the quality of the water intended for human consumption. There exists at Constantinople a small number of stand-pipes which supply good spring water. This water is appreciated by the inhabitants, but it is sold at a high price, and its scarcity does not admit of its being provided to every one. The water of Derkos collected by a French company on the shores of the Black Sea is conveyed into the town by means of water-tight conduits, but this supply is also sold only to a limited number of privileged people.

The water which is gratuitously placed at the disposal of the inhabitants, and which is distributed to the public stand-pipes, comes, for the greater part, from Stamboul by means of seventeen special conduits that are supplied from the mountains situated to the west of the town.

At Scutari the supply is furnished by some very ancient conduits which are badly protected, the precise source of supply to which is not well known, and which traverse, without proper protection, either immense cemeteries such as the one at Scutari, or else the surface soil of inhabited areas the cesspools in which are not water-tight. The districts of Galata-Pera, Kassim-Pacha, Haskeui, the point of the Golden Horn, and the extreme east of Stamboul, receive their supply from sheets of water (bends) situated in the neighbourhood of Belgrade.

These, to the number of five or six, are in reality only reservoirs formed by the artificial damming up of the valley. They are filled by rain-water which has run over the surface

of the soil; and they are insufficiently protected against contamination. The water collects in these reservoirs, carrying with it the surface earth, lime, and often impurities of all sorts. Following on a period of drought such as occurred during the autumn of 1893, these reservoirs, containing much mud and a small quantity of turbid water, seemed little else than veritable marshes. Such was the reservoir of Sultan Mahmoud at the end of October. Every storm stirs up the mud in these reservoirs and disturbs the water. At Belgrade the two great reservoirs are united by a canal so situated in relation to the village of this name that storm waters necessarily carry with them the filth of the village. The conduits which carry the water from these reservoirs into the town are in many places in a very defective condition. The conduit from the reservoir of Sultan Mahmoud is in several places exposed to the open air, and this without protection, in such a way that it is impossible that it should escape frequent pollution.

These data will explain the frequency of intestinal maladies in Constantinople, such as dysentery, and above all typhoid fever; as also the tribute paid by the immigrant European population not yet acclimatised.

I. It is in the presence of such imperfect hygienic conditions and of an incomplete urban sanitary organisation that cholera last made its appearance. Its origin is still unknown. In a number of countries with which Turkey is in frequent relations, and even on Ottoman territory proper, as at Smyrna, cholera was at the time prevalent. So also during the summer season the population of Constantinople suffers habitually from gastro-intestinal affections. Did these occurrences present any peculiar aspect during 1893? Were there here and there in the town premonitory attacks such as so often precede virulent cholera, and which are indeed only cases of cholera in a modified form? Certain available information would imply that this latter was so.

The first officially recorded case showed itself in the Haskeui quarter on August 24, 1893, and on the 28th two other fatal attacks were notified at Galata.

On August 29 the epidemic broke out suddenly at the

lunatic asylum in Scutari. In a few days, by September 6, fifty-three attacks had occurred, of which only nine recovered. At the same time a small centre made its appearance in the prison of Stamboul, and three fresh cases occurred at Galata. From the very onset the epidemic showed its true choleraic character amongst the lunatics and the prisoners, a poverty-stricken people who so easily succumb to cholera. It then diffused itself in the town; and at the same time, and without its being possible to establish any causal relationship between the different cases, cholera appeared in the three suburbs of Galata, Stamboul, and Scutari. This striking character of the diffusion leads to the supposition that the infection had been imported into different parts of the town. In establishments where one found collected together conditions such as overcrowding in the prison, or the contamination of the water supply such as the only reservoir available for the lunatics, &c., centres were created where the virus developed its power of contagion and of diffusion.

From the 7th to the 18th of September fifty-one cholera patients succumbed in the lunatic asylum or in its vicinity; and in the same neighbourhood twelve others were attacked who recovered. The *foyer* at the Stamboul prison and in its neighbourhood increased; and it led to four deaths, besides eight attacks which recovered. A first case was reported from a man-of-war in the open roadstead; and the disease also appeared in two houses in the neighbourhood of the Selimié Barracks.

From the 19th to the 30th of September there was a further diffusion, the Selimié Barracks becoming invaded. The soldiers who were sent to the Haïdar-Pacha Hospital carried the disease with them; the first twelve arrivals from Selimié sufficed to cause the death of ten patients and nurses inhabiting the hospital. The cholera then spread along the Asiatic shore of the Bosphorus, and showed itself also at Cons-Koundjouk and Beylerbey.

From the 1st to the 10th of October the centres already formed were maintained; and fresh victims were struck down in their immediate neighbourhood around the Selimié Barracks, the lunatic asylum, and on board the men-of-war.

In the quarters of the town, and even in the same houses where previous cases had occurred, small centres were created, as at Haskeuî, Tatavola, and Galata; in fact, cholera extended along the lines of railway to Makrikeuî, and ascended the Bosphorus as far as Beikos.

From the 11th to the 20th of October these multiple centres remained active. It can now be stated (February 1894) that at the lunatic asylum, at the Selimié Barracks, and at Haïdar-Pacha cholera is diminishing. But notwithstanding this the epidemic is extending along the shores of the Golden Horn, at Aya-Kapou, Balata, Eyoub, and towards the Bosphorus, at Bouyouk-Dere and at Sirah-Tach, where there occurred five cases, of which four ended fatally; and, lastly, a centre was formed at Eski-Shehir in Asia Minor.

On maps in which the cases of cholera are charted it is shown that from the commencement of November the greater part of the suburb of Stamboul enjoyed a remarkable immunity from the disease. Throughout the whole extent of the old city, from the prison to the ancient earth-wall, and amongst a compact population, cholera failed to penetrate; only two cases imported from Kassim-Pacha were recognised at the Mosque of Sultan Mehemed, and they remained sterile. I would recall the fact that this part of Stamboul receives the greater part of its water supply from springs conveyed in special conduits.

From the 20th to the 30th of October the violence of the epidemic underwent marked diminution. During this period of ten days the weather was continuously very fine; the cholera attacks were both less numerous (35 in ten days) and less severe; the epidemic had apparently entered on a phase of marked diminution.

From the 1st to the 5th of November the improvement was still more marked. Several days passed without any record of new cases of cholera. Certain observations, however, made during the course of the epidemic hardly warranted the hope that the cholera would quietly die out. They indicated, indeed, the necessity of making special reservations as to the possibility, even probability, of a recrudescence of the epidemic.

Twice during the month of October rain had fallen, and each

fall of rain had been followed two or three days later by a smart recrudescence of the epidemic. The rain having only lasted a few hours, the recrudescence was only of three or four days' duration, when it gradually died out. At the beginning of November the period of autumn drought would come to an end, and, notwithstanding the apparent disappearance of the epidemic, one could not but fear its revival at the moment when the abundant rains would once more wash into the surface soil in and around the reservoirs and carry into the water conduits the surrounding impurities.

A violent storm broke out on November 3. On the 6th 36 new attacks were recorded. On the 7th there were 28 fresh cases, and on the 8th there were 23. The rainfall had once more clearly indicated its close relationship with the propagation of the epidemic.

On October 30, more than two months after the commencement of the epidemic, and thanks to the measures directed by the Prefect of the town, his Excellency Redvan Pacha, there had only been 449 cholera cases. The number of victims, having regard to the amount of the population, was regarded as so small that the presence of true Asiatic cholera in Constantinople was still doubted by some physicians. But the recrudescence which followed the rainfall in November convinced the most hesitating.

The distribution of the cholera took place under the obvious influence of two factors: (1) direct contagion, the transmission taking place from the sick persons to those immediately around them; (2) the consumption of impure water. What was the comparative importance of these two elements of propagation of the disease? This is a question which I am unable to answer in the absence of more precise data.

II. Having arrived in Constantinople on September 26, I obtained permission the next day to make an autopsy on the body of a Mussulman soldier who had been attacked by a suspicious *entérite* several days beforehand, and who, having been carried to the Bachi-Baglar hospital, had soon succumbed. The disease having lasted several days, the results of the autopsy and the microscopic examination of the contents of the intestine were not characteristic. Culture of the liquid

intestinal contents furnished, however, in abundance colonies of the comma bacillus. The characteristics of the vibrio thus obtained placed it in the same category as those other comma bacilli which have been isolated in a certain number of cholera epidemics, and which, as is known, have presented certain individual differences. Cultivated on gelatine, it was curved, small, stunted, with thin extremities, and resembled the typical vibrio brought from India by Koch. It had also close analogy with the vibrios found in the epidemics of Hamburg (1892) and of Nantes (1893). It was distinguished from the thin and elongated vibrios of which the prototypes were the comma bacilli found at Massowah and in Paris (1892). On gelatine it showed well-marked spirilla. In bouillon and in peptone solution, its development was accompanied by the formation of a superficial scum such as has been observed with certain varieties of comma bacilli.

It is furnished with one single flagellum, not attached to the middle part but to the lateral angle of one of its ends. The majority of the comma bacilli have one single flagellum, such as was found in India by Koch, as also at Hamburg, at Paris, and at Saigon. One knows that certain other forms of cholera bacilli present four flagella at their extremities (Massowah, Calcutta, and Paris, 1884). Cultivation on gelatine, on plates, and by stab showed results exactly like those described by Koch (India)—that is to say, it was rather less liquefying than those comma bacilli with four flagella.

I do not lay stress on the observed characters of the cultivation on gelatine, potato, and broth. They are not distinctive. As is usually the case, the microbe coagulated milk. The rose-red reaction (indo-nitrous) obtained by the addition of sulphuric acid was very feeble. It was not produced in the case of broth-cultures, it only appeared when the culture medium was rich in peptone (*i.e.* the peptone solution). The reaction of Legal-Weyl (nitro-prussiate of sodium, soda, and acetic acid) gave a fine bluish-green reaction which persisted for several hours.

The virulence of this comma bacillus has been studied in the pigeon and in the cobra capella. A sub-culture on gelatine, enveloped during four-and-twenty hours at 37°C., and inoculated

with 2 ccm. of sterilised water into the pectoral muscle of a pigeon, caused the animal to die in four-and-twenty hours. Several hours after the inoculation the pigeon already suffered from diarrhœa. At the autopsy there was hæmorrhagic congestion at the point of inoculation; the intestine was engorged with a whitish liquid, and the intestinal lining presented a pink tint due to hyperæmia of the vessels. This intestine had the appearance of a cholera intestine in man.

The intraperitoneal inoculation of two thirds, of a half, and of a quarter of a culture on gelatine, incubated for twenty-four hours, caused an adult cobra to die in four-and-twenty hours. If the dose did not exceed a sixteenth or an eighth of a culture on gelatine, the animal resisted. Notwithstanding, however, a particular cobra weighing 315 grammes succumbed with symptoms and lesions resembling those of experimental cholera, after having received in the peritoneal cavity one thirty-second of a culture developed in a gelatine tube. Microscopic examination of the peritoneal exudation did not enable one to recognise the presence of the cholera vibrio scattered about, but cultivation of a large quantity of this exudation gave rise to the growth of comma bacilli. The autopsy on this animal enabled one to recognise that before the cholera inoculation it was already suffering from pseudo-tuberculosis (cocco-bacillaire); the cobra therefore succumbed to a very small dose of the cholera virus because its health was already suffering owing to antecedent illness. This experiment enables us to understand the facility with which certain individuals succumb to cholera. This facility may be such indeed that they would succumb to a small dose of the cholera virus without its being easy or even possible to prove at the autopsy the presence of these specific microbes.

III. Before drawing from this experimental study deductions as to the nature of the epidemic, I ought to indicate the prophylactic measures that were instituted to combat it.

When the cholera broke out in the lunatic asylum of Scutari, the Sultan, Abdul-Hamid, inquired by telegram of M. Pasteur to indicate to him the precautions which should be taken to control the epidemic. A memorandum was prepared by Dr. Roux and myself, and was delivered at the Ottoman

Embassy. On my arrival in Constantinople the prescribed measures had been applied at the asylum under the supervision of Doctors de Castro and Rifaat. The cistern, which had been contaminated by infiltration of matters from the choleraic patients who had lain over it, had been emptied; all the contaminated linen had been passed through a Herscher stove; the floorings and the privies had been disinfected by chloride of lime. The lunatics were supplied with boiled water only, even for their personal ablutions. And, thanks to these measures, the epidemic was stayed in a few days.

In the town the struggle with the epidemic was much less complete. There were no disinfecting stations, no stoves, no staff accustomed to practise disinfection, no sufficient information as to dealing with suspected cases; and only fatal attacks of cholera were with certainty heard of.

Since the beginning of the month of August the sale of water melons and other indigestible fruits had been forbidden under an Imperial irade. Land quarantine such as is practised in the East had been resorted to. As soon as a case of cholera was heard of, the police surrounded the house by a sanitary cordon, and no one was allowed to enter or to leave it. At the outset the physicians who undertook the care of the sick were kept as prisoners with the rest of the family for ten days and even longer. Later on the doctors of the town were allowed to move freely between the houses where there was cholera, on condition that they submitted themselves to disinfection. The interned sanitary officials were maintained at the cost of the State.

In the town a certain number of the inhabitants, as also the occupants of special establishments, took some necessary precautions on the advice of their medical officer: this was the case, for example, in the case of the Public Ottoman Debt Establishment, under the care of Dr. Gabuzzi. But these measures were by no means general. The feeble extension of cholera during the months of September and October was insufficient to produce that fear which alone secures from the public the adoption of requisite precautionary measures.

I asked from the moment of my arrival that the measures of land quarantine should be abolished. I did not ignore the value of some such action in a country where the water tanks and water

conduits were so easily liable to contamination, hence it was above all things important to prevent the transport into the town of contaminated linen; and where the movement to and fro of persons who had been in contact with the cholera sick should be subjected to the same conditions as apply to those who are justly suspected of choleraic infection. But, after having marked on a map of the town the cases of cholera which had occurred, I considered that the malady had too many centres, some known and others kept secret, for us to be able to attack them all, and I took account of the fear which the establishment of sanitary cordons would induce—a fear which would have led to the secreting of cholera centres which it was so important for us to know of.

But by reason of the advantages which were held to ensue from such action, the Imperial Government maintained the establishment of sanitary cordons—not, it is true, after the manner in which they had existed formerly, but of a sort that could be adapted to the measures of the present day, and which were supplemented by local action by way of disinfection.

The measures which I proposed for adoption had two objects in view: the one set aimed at the improvement of the general sanitary service of the town, the other set had to do more particularly with the struggle against the actual epidemic.

I asked that in the future there should be created a Superior Council of Hygiene analogous to the French Comité Consultatif; that works likely to be of long duration, such as the construction of town sewers, the erection of sand-filter beds for the water supplies, and the provision of porcelain filters to the water stand-pipes in barracks and public places, or wherever the supply was either suspicious or under sufficient pressure to admit of such filtration, should be put in operation. And I pointed out that Constantinople would never have a proper water service until the supply was taken from the foot of the Balkans.

By way of controlling the epidemic I asked that there should be established at the Prefecture of the town a central office, where all information as to the epidemic could be daily brought, and from which would emanate all orders and instructions given either as regards the disinfection service or for the purposes of the population themselves.

In order to ensure a service of adequate information, I asked for such increase in the number of doctors attached to the municipality that one medical visit could be daily paid to the houses of the poor in those quarters of the town where cholera existed. The object of this visit was to obtain information as to the sanitary condition of the house, to learn as to the existence of every suspected case, to give advice to the inhabitants with regard to the necessity of drinking no water but that which had been boiled, to ensure the cooking of all foods, &c. The doctors in question were required themselves to distribute doses of benzoate of bismuth whenever they met with any case of even mild intestinal trouble. They were also to obtain by the aid of these visits the means of furnishing the sanitary office with early and precise information as to the course of the epidemic. And, further, an Imperial irade compelled chemists to notify to the Prefecture all suspected cases met with. In these various ways prompt information was procured as to the existence of cholera centres, and as to the measures of isolation and disinfection adopted.

As soon as a case of cholera was notified, and after the patient had either been sent to hospital or been placed under isolation in his own home, no one but the doctor in charge and those having immediate care of the sick person were admitted to his presence. The patient and all his surroundings came under medical control and advice; and the boiling of drinking water, the cooking of food supplies, the disinfection of people's hands and clothes, together with means for the application of antiseptics to bed-pans, were arranged for.

At first, the public disinfection service was most rudimentary in character. There were no central stations fitted with disinfecting stoves, no means of transporting contaminated articles, and no such staff of skilled disinfectors as would allow of rapid and efficient disinfection directly a new case arose. And not only so, but, notwithstanding the activity displayed at the Prefecture, there was too long an interval between the receipt of information as to a first case of cholera and the process of disinfection; and the process itself did not suffice to remove all cause of danger, as was shown by the frequent recurrence of cases in the same houses, and even in military establish-

ments. In the actually infected localities the municipality worked with the utmost zeal to carry out the needed disinfection, but both the materials available and sufficient technical knowledge as to their use were lacking.

I asked for the establishment in the suburbs of Scutari, Stamboul, and Pera of three disinfecting stations like those in the Rue de Récollets in Paris. Each one was to be fitted with high-pressure steam apparatus and spray-apparatus; with carts, which could easily be disinfected, for the conveyance of linen, &c., to and from the stoves; and a staff of thirty firemen was created to act as disinfectors, during the course of the epidemic. M. Mondragon, superintendent of the disinfecting service belonging to the municipality of Paris, undertook the theoretical and practical instruction of this staff. M. Mondragon, who was sent out by Dr. A. J. Martin at my request, has indeed rendered considerable services to the Ottoman Government, by whom he is retained under an annual engagement. The disinfectors were supplied with a special uniform, with pump apparatus for dealing, by sprays of perchloride of mercury, with the walls and floors of apartments, with various stuffs, &c., also with milk of lime and chloride of lime for application to privy-pits. In the absence of steam apparatus, soiled mattresses were burned; whilst linen which was in comparatively small bulk was plunged for an hour in a receptacle filled with an antiseptic fluid.

And lastly, an essential matter, which was made the subject of constant recommendation to the population by means of the press and the medical staff attached to the municipality, was the requirement that no water which had not been boiled should be used for any purposes of food supplies.

The carrying out of these measures was confided to the prefect of the city, with the assistance of a Sanitary Commission of eminent medical men, amongst whom were our fellow-countrymen, Dr. Mahé and Dr. Nicolle of the Pasteur Institute, the latter having been engaged by the Ottoman Government as Professor of Microbiology to the School of Medicine of Constantinople. Dr. Nicolle is about to recommence the course of medicine in the French language which has been suppressed since the war of 1870. And, under an irade of the

Sultan, he will shortly be joined by two other French physicians, who will undertake the professorships of clinical medicine and clinical surgery in the School of Medicine.

The prophylactic measures to which I have referred could not, of course, be put into practice the moment they had been determined on.

But let us take a glance at the results obtained four months after the onset of this epidemic which reappeared in Constantinople after an absence of twenty-two years—that is to say, after a lapse of time sufficient to eliminate all chance of acquired immunity. We have seen that the comma bacillus found in the cholera cases in Constantinople possessed considerable virulence in its action on such experimental animals as the cobra and the pigeon; a virulence quite comparable with that displayed by other comma bacilli found in different epidemics both in Europe and in Africa. The poison was less virulent than that of the African epidemic at Massowah and of the Nantes epidemic (1893), about equal in virulence to that of the Paris epidemic (1892), and more virulent than that of the Hamburg epidemic (1892). It must, however, be remembered that in the present state of science we cannot, necessarily, judge from experiments made with the comma bacillus what should be the severity of an individual epidemic. Quite irrespective of the actual quality of a given virus, many other etiological factors are concerned in the propagation and extension of a contagious malady. Thus, there arise questions as to the greater or less extent to which drinking water is infected, the conditions of temperature, the chances of local immunity, the immunity possibly conferred by an antecedent epidemic of recent date, &c. But, after all, it is impossible not to be convinced that the prophylactic measures adopted did play a powerful part in limiting the cholera epidemic, both in point of numbers attacked and of the virulence of the outbreak.

In Paris, in 1892, the epidemic persisted many months, and led to numerous victims both in the suburbs and in the department of Seine-et-Oise, and this notwithstanding the complete measures of disinfection and the energy that was displayed on all hands. In Hamburg, again, the attacks were estimated at 16,000 in number, and the deaths at 8,000. And in Persia,

cholera claimed 150,000 victims in a population of about 6,000,000 during eighteen months.

At Constantinople, where, as I have explained, the most imperfect conditions of public hygiene prevailed, the epidemic appears to have reached (in February) its last stage, the daily number of attacks becoming less and less.

From the 24th of August to the 31st of October the number of those attacked was 449, and of these two thirds succumbed. Under the influence of the November rains there was a recrudescence, which, according to official statistics, raised the total number of attacks since the beginning of the epidemic to about 2,000, with 1,100 deaths. The epidemic spread but little to other parts of the Ottoman Empire, although the movements of troops led to its transmission to Salonica and to Tripoli in Africa.

Without entering into detailed criticism as to the actual results which were accomplished, and without passing judgment on the methods by which the prophylactic measures were carried out, one cannot ignore the fact that the ravages which cholera produced in Constantinople were relatively feeble. This result was due to the direct initiative and to the energetic will of the Sultan Abdul-Hamid; for the delegate from the Pasteur Institute, whose influence was consultative only possessed no executive functions.

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THE EARLY MYELOGENIC FEATURES OF LEUCOCYTHÆMIA.

BY M. A. BOYD, M.D.,

*Fellow of the Royal College of Physicians, Ireland ; Physician to the Mater
Misericordiarum Hospital, Dublin.*

SINCE Ehrlich has drawn attention to the features characteristic of a myelogenic type of corpuscle in leucocythæmia, the number of cases of the mixed type of this disease would seem to be more general than clinical physicians and pathologists were disposed to admit. This oversight may be accounted for, to some extent, by the few leukæmic patients who seek relief in the early stages of the disease, when the myelogenic type of corpuscle is met with ; and also by the difficulty of recognising these corpuscles except by suitable staining. The nucleated red discs on which reliance has been placed heretofore, though of undoubted myelogenic origin, are not invariably found in leucocythæmia, and may be met with in other affections involving an interference with blood-formation. Their presence however in the blood, accompanied by the other clinical features of leucocythæmia, would be strongly confirmatory of engagement of the bone-marrow. It is to the eosinophile granule-cell of Ehrlich we must look for the indication of myelogenic changes, and by following his methods we should be able to

ascertain whether a case under treatment owned a mixed type or not.

The case of which I give the following history illustrates this in a remarkable degree; and though the clinical features pointed to a spleno-lymphatic variety of the disease, repeated examinations of the blood by Ehrlich's method revealed unexpectedly the presence of a myelogenic affection also.

Denis M., aged fifty, married, a farmer by occupation, living in a damp but not malarious district of one of the central counties of Ireland, was admitted into St. Kyran's Ward of the Mater Misericordiæ Hospital under my care on February 3 of the present year. His family history was a good one, father and mother living in the same neighbourhood to old age. There are three brothers and two sisters older than himself, all healthy. He had measles when sixteen, and scarlatina at twenty, but since then enjoyed good health up to the beginning of the present illness. He never had syphilis. His illness, for which he cannot account in any way, began, early in September 1893, by a feeling of general lassitude, with breathlessness on exertion, accompanied by intense thirst, and pain in the left side under the ribs shooting up into the left axillary region; when severe, it obliged him to remain in bed for one or two days at a time. In the beginning of October his legs got weak, accompanied by pains in his bones similar to rheumatism. For the next three months he noticed his abdomen enlarging, felt unable to work, and lost flesh considerably, but his appetite continued good, and at times was voracious. Some days before his admission to hospital a small red pimple showed on the skin in the umbilical region, accompanied by considerable stinging pain, and on his admission exhibited all the features of beginning anthrax; ultimately forming into a brawny, pale-pink, phlegmonoid induration, about five inches in diameter. It took a long time to slough, and a much longer time to heal than similar indurations in other subjects; sloughs not being quite free even after incision and antiseptic injections into the base of the swelling, more than a month after admission.

Examination of patient on admission showed an ashy grey anæmic appearance of face, with slight malar flush, and pallor of mucous membranes of mouth and conjunctiva. Abdomen

enlarged; no ascites. Spleen enlarged and smooth, but not painful to touch. Liver moderately enlarged; left lobe reaching two fingers' breadth below costal margin; no irregularity on edge. Stomach moderately dilated, with splash on succussion; no vomiting. Cardiac impulse was diffused and raised to nipple line, and a systolic hæmic bruit heard at apex and base. Dulness on percussion at bases of both lungs posteriorly, with coarse crepitus in these situations, but not much suppression of vesicular sounds, and no distress in breathing. No evidences of pleural effusion, and very little cough. Some glands in groins and axillæ enlarged to size of hazel nuts, but none elsewhere. Tenderness on pressure over sternum and ribs was present, also over tibiæ; and occasional cramps were complained of in the legs. Temperature 99·8°; pulse 80. Urine very acid and abundant, specific gravity 1030, with urates and uric acid crystals, but no albumen. No hæmorrhages, except very occasional slight epistaxis. Examination with the ophthalmoscope showed the fundus pale, and many of the retinal vessels choked with leucocytes. As the symptoms indicated leucocythæmia, an examination of the blood was made by Professor McWeeney, Pathologist to the Hospital; and I am indebted to his kindness, and the interest he took in the case, for the additional light thrown on it. The following is his report:—

"The hæmacytometer revealed diminution of all the cellular elements, the cells being in the proportion of one white to eight red. The first examination after entering hospital showed 3,350,000 red cells and 372,000 white cells per cubic millimetre. About 10 per cent. of the leucocytes showed on staining Ehrlich's eosinophile granules. Two abnormal elements were present—nucleated red discs, and very large mononuclear leucocytes, 'myelocytes,' the nucleus of which stained faintly with the basic anilines and hæmatoxylin. These cells, in all the examinations made, not unfrequently contained eosinophile granulations. In the polynuclear leucocytes, which were very numerous, the presence of Ehrlich's 'neutrophile,' or ϵ -granulations, could always be demonstrated by careful staining with a suitable aniline mixture (Biondi-Ehrlich reagent) and subsequent examination with an immersion lens. The γ -granules, or 'mastcell' granules of Ehrlich, were present, and arranged in

the circular perinuclear groups described by that discoverer. Mitotic division of the nuclei of the leucocytes was made out with difficulty, and did not seem at all frequent.

"With regard to the nucleated red discs, the following remarks are to be made: (1) Marked metachromatism of the nucleus compared with that of neighbouring leucocytes; (2) fragmentation of the nucleus, often mimicking the rosette stage of mitotic division; (3) extrusion of nucleus seen in various stages of the process; and (4) occurrence of free nuclei."

The second examination of the blood, made a week or ten days later, showed the same cellular characteristics, with a further fall in the general cellular elements to 2,200,000 red (44 per cent.) and 73,000 white per cubic millimetre. This may be accounted for by the interference with nutrition caused by the gradual formation of the brawny anthrax since his entrance, and the choking of the capillaries with leucocytes all round it for several inches in all directions, over the umbilical region.

From his admission abundant nourishment was given to the patient, and \mathbb{M} .v. of Fowler's solution of arsenic, gradually increased, after food thrice daily. His temperature never rose above 99°, until injection and incision of the sluggish anthrax a fortnight after his admission caused it to rise to 102°—though under ordinary circumstances it would have fallen—showing how badly leukæmic patients bear the slightest operative interference. It fell to normal after two days, but it took several weeks before the sloughs separated, and granulations under stimulating applications began to appear in the site of the anthrax.

A subsequent examination of the blood, a fortnight after the first examination, showed 3,280,000 red and 80,000 white cells per cubic millimetre. After this the patient gradually regained strength, and expressed a desire to get out of bed. A month's treatment with arsenic showed the proportions of one white to twenty red, and at the end of two months, during which time arsenic was given almost continuously, one white to forty red. The arsenic was now discontinued, and "Red Extract of Bone Marrow," Benger's preparation, substituted for it. From a physiological point of view it was hoped that this treatment

would have been beneficial, but I am sorry to say it did not realise my expectations, as the blood showed after some weeks of this treatment no increase of red and a gradual increase of the white corpuscles, the proportions being on April 25 3,000,000 red to 210,000 white per cubic millimetre. The bone-marrow extract was consequently stopped, and the arsenic again administered, until the proportions were one white to forty red.

The large number and persistence of eosinophile cells in this patient's blood, with corpuscles of transitional form, left no doubt on my mind as to the myelogenic origin of it, the splenic and lymphatic changes being secondary and of more recent origin. The history of the case also bears out this assumption. The case apparently in its clinical features did not differ from twenty other such cases of splenic leucocythæmia, or splenolymphatic leucocythæmia, except in coming under treatment earlier than the time most cases of the kind seek admission to hospital, when the splenic or lymphatic symptoms are the only ones prominent. In contrasting the case with others owing a malarial origin—and they are the majority—where the liver and spleen are enlarged from the beginning, it would seem that the graver condition involved in the changes in these organs preponderates over all others, and if any myelogenic changes are present obscures them entirely. One can hardly conceive, however, myelogenic changes being absent even in cases of malarial origin, as grave alterations affecting the blood could not exist in one or two of its most important formative organs, and leave the third untouched. Myelogenic changes must, however, play only a small part in the gravity of such engagement, judging from the few cases that terminate fatally before the spleen and lymphatics show pronounced evidences of disease; and from the doubts expressed by competent observers that a purely myelogenic case of leucocythæmia is ever seen post mortem.

One cannot help coming to the conclusion that all cases of leucocythæmia are from their very nature of a composite character, those with prominent splenic symptoms being the most formidable, those with myelogenic least so.

Whether a myelogenic change is present in all cases from the very beginning I am not prepared to say; but there can

be no doubt that many patients suffering from what we regard as spleno-lymphatic leukaemia in its unmistakable features give histories which would, in the early stages of the disease, indicate a pronounced and formidable interference with blood-formation in the bone-marrow, prior to splenic or lymphatic symptoms becoming prominent.

We are too prone to regard all cases of anæmia where we cannot find a decided cause for it (I exclude of course the chlorotic varieties) as due, either to malnutrition from gastro-intestinal trouble, or to malignant disease, and overlook the obvious necessity that exists for a careful examination of the blood. Our suspicions should be aroused as to its possible dependence on early myelogenic blood-changes, and we should make it a rule in anæmia without assignable cause, accompanied by languor and pains in the bones, with or without hæmorrhages, to have an examination of the blood made for purposes of diagnosis.

A remarkable feature in the case just detailed was the enormous stuffing of the capillaries and tissues around the anthrax by leucocytes. This would seem to indicate that in leukaemic blood the vital attraction of phagocytes and other leucocytes towards an inflamed or injured part is in excess of the same migration in normal conditions of the blood. But they apparently migrate aimlessly, and with a lowered vitality and resistance, rendering the process of repair more difficult, and the inflammation of a more phlegmonoid character. This is a point of considerable importance in prognosis, if inflammatory troubles arise in internal organs, or in injuries to leukaemic subjects, apart from the well-known liability of such subjects to dangerous hæmorrhages after slight operations.

NOTE ON THE USE OF FERRATIN IN CASES OF ANÆMIA.

BY JOHN HAROLD, L.R.C.P. LOND., M.R.C.S. ENG.,

Medical Registrar, Charing Cross Hospital.

PROFESSOR SCHMIEDEBERG contributed an article to *The Practitioner* for December 1893 on the dietetic and therapeutic uses of an artificially prepared iron compound termed Ferratin. Ferratin is a fine powder of a rusty colour, and is prepared in an uncombined form which is insoluble in water, and as a sodium-compound which is readily soluble in water. The latter solution can be added to milk or other liquid food when it is desired to administer it to children. Inasmuch as this substance has been described and recommended by the distinguished professor at Strasburg, I resolved to test its effects in three selected typical cases of severe anæmia, although the method of its preparation is as yet not fully published. Two of these cases were treated as ordinary hospital out-patients; the third, the most severe of the three, was treated as an in-patient. In each case the administration of Ferratin produced no digestive trouble or constitutional disturbance. The notes of the three cases are epitomised in the following abstracts.

Case I.—M. B., aged sixteen, was first seen on April 10. She had been ailing for over eight months, complaining of nausea and vomiting, palpitation, shortness of breath, irregular action of the bowels, deranged menstrual functions, and loss of colour. She lived in a moderately healthy district. She was ordered Ferratin gr. viij—xxx three times daily, an aloetic pill at bedtime, and gentle outdoor exercise daily. She soon showed signs of

improvement, all the unpleasant symptoms disappearing, the cutaneous and visible mucous membranes regaining their previously healthy hue, and the menstrual function, which had been eight months in abeyance, becoming re-established.

The examination of the blood showed the following results:—

April 17	Hæmoglobin	28	per cent.	Red Blood Corpuscles	1,910,000	per cmm.
" 24	"	38	"	"	2,100,000	"
May 1	"	42	"	"	2,400,000	"
" 8	"	45	"	"	2,400,000	"
" 16	"	50	"	"	2,550,000	"
" 22	"	60	"	"	2,600,000	"
" 29	"	60	"	"	4,370,000	"
June 5	"	60	"	"	4,390,000	"
" 14	"	70	"	"	4,390,000	"

Case II.—J. D., aged nineteen, a dressmaker's assistant, obliged to work from 9 a.m. to 8 p.m. in a badly ventilated and overcrowded workshop, on coming under observation on April 17 was found to be extremely anæmic. Her chief troubles were insomnia, shortness of breath on the slightest exertion, amenorrhœa, bad appetite, palpitations, and a general feeling of lassitude. There were well-marked hæmic *bruits* in the neck and over the præcordia, the tongue was very pale and flabby, and the bowels were constipated. Examination of the blood showed thirty per cent. of hæmoglobin and, 2,120,000 red blood corpuscles per cmm. The patient had been treated with some preparation of iron by her doctor, but with no obvious improvement in her condition. As in the preceding case, Ferratin was ordered in increasing doses of gr. viij—xxx three times daily, the bowels being regulated by a mild pill of nux vomica and aloes. From May 5 onward patient improved in health, her appetite reappeared, her strength returned, the menstrual function was re-established, and she felt sufficiently well to become anxious to return to her work. The following are the results of the examinations of the blood:—

April 17	Hæmoglobin	30	per cent.	Red Blood Corpuscles	2,120,000	per cmm.
" 24	"	40	"	"	"	"
May 1	"	50	"	"	2,810,000	"
" 11	"	60	"	"	4,000,200	"
" 16	"	65	"	"	4,200,000	"
" 22	"	68	"	"	4,350,000	"
" 29	"	80	"	"	4,370,000	"
June 5	"	80	"	"	4,390,000	"

Case III.—B. C., aged nineteen, a tall, fair-complexioned,

and well-developed girl, an assistant to a mantle-maker, had previously to 1892 enjoyed excellent health; but in that year she had what was supposed to be an epileptic fit, and recurrent attacks of unconsciousness. She quickly became anæmic; her face became of a sallow aspect, she felt tired and languid after the least physical exercise, the catamenia ceased, constipation was the rule, breathlessness and præcordial distress followed upon any exertion, she passed restless nights, and had œdema about the ankles. She was under constant medical treatment for twelve months, but the anæmia with its attendant subjective phenomena steadily became worse. On admission to hospital patient was markedly pale and languid. *Hæmic bruits* were audible in the neck and over the præcordia. There was no sensible cardiac enlargement; the urine was pale in colour and non-albuminous; there was no pyrexia; the pulse was small, weak, and slightly increased in frequency; the *fundus oculi* was normal; and the patient complained of throbbing in the cervical vessels.

Absolute rest in bed was enjoined, a proper action of the bowels maintained, a light, nutritious, and easily digested diet ordered, and Ferratin prescribed in doses of eight to thirty grains three times daily. The blood was examined at intervals, with the following results:—

March 22	Hæmoglobin	26	per cent.	Red Blood Corpuscles	= 1,640,000	per cmm.
April 8	"	30	"	"	2,915,000	"
" 28	"	40	"	"	3,055,000	"
May 1	"	40	"	"	3,620,000	"
" 15	"	55	"	"	4,110,000	"
" 22	"	70	"	"	4,200,000	"

This case differs from the two preceding cases, inasmuch as the patient had resided in a most healthy part of the country, and had resisted a twelve months' course of iron given in the form of the mild scale preparations or as reduced iron. The anæmia, however, responded to the use of Ferratin, the pale waxy-looking cheeks gradually becoming red as their owner was restored to health.

As has already been mentioned, the element of *rest* formed an all-important adjunct to the treatment of *Case III.* Dr. Frederick Taylor,¹ in an interesting article, lays special stress

¹ *The Practitioner*, Vol. LI. p. 161, 1893.

on the importance of physical rest in the treatment of cases of chlorotic anæmia. To estimate therefore the relative medicinal value of iron compounds, to decide, as it were, which shall be our ideal therapeutic hæmatinic, must of necessity always be difficult. Many cases of anæmia recover spontaneously without any medicinal treatment whatever, when they are placed under favourable hygienic surroundings, rest enjoined, nutritious and easily assimilable food administered, and attention paid to the daily regulation of the evacuations. These cases recover on the assimilable iron compounds derived solely from the ingested food. We meet with other cases which fail to respond to our dietetic and medicinal measures until physical rest—if necessary, absolute rest—has been secured.

As yet but little is known as to how the assimilation of iron is regulated by the organism, and we are also more or less in the dark as to the conditions and form of its absorption. Until our knowledge on these points has been advanced, no definite pronouncement can be made or verdict given as to which iron compound will be our ideal therapeutic preparation. According to Bunge, inorganic iron is solely of use in combating and neutralising the hydrogen sulphide present in the alimentary canal, the hæmoglobin present in the red blood corpuscles deriving its iron constituents from the organically combined iron in our food. In other words, the hydrogen sulphide is prevented from robbing the food of its organic iron. Intestinal antiseptics accordingly might prove of equal efficacy with our usually prescribed inorganic iron compounds, and it has been found that when prescribed they have indirectly increased the formation of the hæmoglobin. With iron, as with many other drugs, apparently trivial differences in the methods and form in which it is administered, and the dosage in individual cases, not unfrequently produce a great difference in the result obtained. The full recognition of this important fact should ever be before our minds; and it is because of want of proper attention to what may, at first sight, seem a small detail—the form of administration of our therapeutic measures—that we so often fail to derive the desired benefit.¹ It cannot but be acknowledged that inorganic iron as generally prescribed cures anæmia in the majority of

¹ *Liverpool Med. Chirurg. Journ.*, January 1887.

cases, but some preparations undoubtedly yield better results than others. How the inorganic iron acts in cases of chlor-anæmia is doubtful, but most likely its *modus operandi* is that already explained.¹

Remembering that the liver of many animals naturally contains a highly ferrated compound, and that the liver performs a ferrogenic function in storing up iron from the blood of the portal vein—a fact so constantly observed in cases of pernicious anæmia—possibly excreting it when the needs of the economy require it, it is interesting to note the effects of the artificially prepared Ferratin. This, as Professor Schmiedeberg has related, is the outcome of the endeavours made by him to administer iron in “organic” combination, and it certainly appeared to exert a remarkable hæmatinic effect in the cases recorded.

¹ *Brit. Med. Journ.*, vol. ii., 1898.

THE PRACTICAL OUTCOME OF RECENT RE- SEARCHES ON CANCER.

BY HERBERT SNOW, M.D. LOND., &c.,.

Surgeon to the Cancer Hospital.

By the kind invitation of the editors, I am enabled to lay before the busy practitioner who has scant time for perusal of elaborate monographs a succinct compendium of some recently published investigations in the very wide field of malignant disease. My work of necessity deals largely with questions which might (provisionally only) be styled questions of pure pathology: these are here left out of sight. But I have long felt convinced that no efficient or scientific treatment of cancer is possible without the very closest attention to pathological details; that in our modern schools pathology is too often widely separated from her twin sisters, surgery and medicine, with which she should rightly walk hand in hand. The present paper embodies this view, and deals solely with points which, based on pathological considerations, yet involve lessons and results of directly practical import.

Foremost of these ranks that insidious infection of the bone-marrow by mammary carcinoma as a routine occurrence, which I believe I am fully entitled to claim as an original discovery. It was indeed previously known to science that in a very small percentage (not more than 2·5 per cent.) of the total cases of breast-carcinoma there were manifested certain peculiar lesions of the osseous system, involving spontaneous fracture of long bones, and marked deformity, or even tumour-formation, in the others. But the real nature of the condition was in no wise understood. Unless an actual tumour existed, it was vaguely

referred to *fragilitas ossium*, or absorption of lime-salts, a consequence of chronic wasting illness. An article by Mr. Stephen Paget (*Lancet*, March 23, 1889) well illustrates the extent of our knowledge under this head, previously to the publication of my researches on *The Reappearance of Cancer and its Prevention* (Churchills, 1890); *Lancet*, March 1891; *British Medical Journal*, March 1892. I therein sought to demonstrate not only that these mysterious phenomena are due to the actual deposit of cancer-cells within the marrow, but, further, that the morbid state which underlies them, the actual infection of this tissue, takes place in the great majority of breast-cases—if not, indeed, eventually in all. It is, however, “insidious”; that is to say, it does not produce tumour, fracture, or marked deformity, though still plainly recognisable by a special train of symptoms described then for the first time. The most striking is a slowly progressive prominence of the sternum (the “sternal symptom”) at the junction of the upper and middle portions of that bone. The association of this with so-called rheumatic pains in the loins and scapulæ, deeply seated, of a gnawing character, and not referred to the articulations, is the pathognomonic sign of marrow-deposit. Occasionally there is tenderness on pressure and slight apparent thickening of the humerus on the side of the disease, in its upper third. The mechanism whereby the carcinoma-cells gain access to the marrow is believed to be that of the lymphatic system. Ordinarily metastasis in the axillary lymph-glands takes place in about two months from the inception of an average *carcinoma mammae*; thence results blockage of the lymph-channels, and diversion of the stream in abnormal directions. Regurgitation takes place along the lymphatics passing from the medulla of the adjoining humerus, the bone ordinarily first attacked; thus the cells are deposited in the marrow of that bone. In the other direction, they reach, by the same means, the residual thymus, a lymphoid organ never wholly obliterated. Multiplying in the recesses of that structure they produce infiltration of the sternum, and thus follows the peculiar sternal condition, which attains a certain degree of prominence, and then remains stationary, very rarely proceeding to tumour-formation. The transference in these two directions may to a certain extent be interfered with by section of the

lymphatics, as by an operation; in those cases known as "atrophic," which permit life for ten to thirty years, it is always very long delayed, and cannot with certainty be affirmed to occur at all. In all ordinary instances of breast-carcinoma not excised within two to three months, the phenomena are developed sooner or later, and are then eventually followed by passage of cell-particles into the general circulation, with visceral metastases. The average period at which, subsequently to operative removal of the mamma, marrow-symptoms appear is four to five years.

The fact explains the many mysteries which have always attended carcinoma of the mamma, over and above every other form of malignant growth, such as the great tendency to recur after excision, and to deposit long afterwards in the opposite breast, and the supposed "constitutional" source. It is further useful in connexion with the obscure bone-lesions known as *mollities ossium*, *osteitis deformans*, *osteo-porosis*, &c., many of which have already been identified with the presence of a malignant deposit somewhere in the marrow. It is further highly suggestive in connexion with the ascertained retirement, in birds, of the *hæmatophyllum malarix*, to the same structure, the blood becoming perfectly free for the time; and it indicates that, as in cancer, the "resting-spores" of many similar obscure infective maladies may here find a more or less prolonged resting-place. In view of treatment, it is of importance as indicating the vital necessity of free operative removal within the two-months period; and, when delay has taken place, the subsequent establishment, immediately after recovery from operation, of a permanent opium-habit, whereby life may be almost indefinitely prolonged. Of several cases cursorily published as exemplars in the *British Medical Journal* of March 10, 1894, one was in good health, with no palpable cancer-deposit, fourteen years after the date of operation; and in several others, with very intermitting adhesion to this treatment, there was no obvious recurrence for from four to five years.

On the question of frequency, of 150 cases of mammary carcinoma seen at an average date of about ten months from inception, ninety showed well-marked symptoms of marrow-infection at the first interview; twenty, the same in slighter

degree; eight developed them under subsequent observation; leaving thirty in which the phenomena were absent or doubtful. On analysis, these latter fall into two categories—namely, “atrophic” cases of many years’ duration; and, secondly, cases too recent to betray symptoms. Thus, of these thirty, twelve were “atrophic,” *i.e.* non-ulcerated, shrivelled-up deposits, of duration from between two and three to sixteen years, five being more than nine years old when first encountered. Again, twelve of the thirty were of duration six weeks to six months, and four from six to twelve months. We may thus confidently affirm the presence of marrow-infection in eight out of ten cases, or 80 per cent.

Opium was of old styled the “*Divi donum*”—the special gift of the gods to men. In respect of no diseased condition is this more true than in reference of cancer; but, unfortunately, a great mistake is made by the profession in withholding this beneficent drug until pain compels its use. Such a practice is simply barbarous. In order to secure its full measure of benefits, the medicine must be resorted to in the very earliest stages, whenever it is evident that radical extirpation by surgical methods is impossible. Thus used, no therapeutic agent we possess so nearly approaches the ideal of cure by medicinal treatment; and that deplorable vantage-ground of cancer, the female sexual organs, most markedly demonstrates the fact. Give opium continuously to a woman, for example, in the early stages of mammary carcinoma, and ulceration will be long delayed, often wholly prevented; the case passing into the shrivelled atrophic stage, compatible with many years of comfortable life. Opium and its derivative morphine appear to me to exert a strong inhibitive effect upon the growth of cancer-parenchyma; not, it is true, wholly terminating, but always materially checking, the cell-proliferation. In my published lecture *The Palliative Treatment of Incurable Cancer* is cited a case in which a large measure of apparent absorption of widely scattered skin-deposits was attained; but it would be too much to hope for such success under all conditions. The good effects of opium are to a certain extent scientifically comprehensible when taken in conjunction with the indisputable frequency of supervention of mammary or uterine cancer upon an epoch of keen mental distress and anxiety.

From the surgical point of view, I have endeavoured to show that "cancer"—even the fatal breast-carcinoma, the popular type of the entire class—kills not nearly so much by its growth on the primary site, as by the infective metastases thence emitted. Therefore it follows that a permanent cure can always be effected in the organs with which the operating surgeon is mainly concerned; provided that not only the part first diseased, but also the tissues ordinarily infected secondarily, be timeously removed, before the infection has extended still further. Thus excision of a scirrhus breast *per se* is an almost futile proceeding, doing a little to prolong life and obviate suffering, but that is all. In order to *cure*, the axillary lymph-glands, infected as a rule within eight weeks of inception, must also be thoroughly cleared away; then, *provided always the operation take place within the above marginal period*, we may well hope for lasting immunity. The same rule holds good with cancer of lips, tongue, *et hoc genus omne*. Further, the golden maxim of modern cancer-surgery is, or should be, to excise the dangerous lymph-glands in the always definite "infection-path," *before the relatively late stage of enlargement*. Increase in bulk does not take place until after several weeks of insidious cell-growth in the meshes of a lymph-gland, during which period more remote glands are receiving metastases, and cell-particles may also pass into the current of the general circulation.

Here comes in the importance of an accurate acquaintance with pathology; for malignant tumours which are developed from the connective tissues do not infect the adjacent chains of lymph-glands, and if the latter be plainly diseased an operation is all but useless. If with a sarcoma of the mamma, for example, be found enlarged axillary glands, this denotes infection of the blood-current, and implies that visceral deposits will also be present. Hence not only will excision of the glands be futile, but it will generally be unwise to touch surgically the primary new-growth. Or again, should the case be recent and the axilla healthy, no advantage will be gained by exposing the patient to the somewhat greater risk of an axillary dissection—a measure imperative, with a few exceptional instances, in early carcinoma.

In the same connexion may be, for practical purposes, regarded my differentiation of the two kinds of melanotic cancer, hitherto almost universally blended under the common title "melanotic sarcoma." Melanotic disease of the skin arises, with rare exceptions, in the pigmented cells of the Malpighian rete.¹ It is therefore a variety of epithelial cancer, and infects the neighbouring lymph-glands exactly as does the common epithelioma. Arising, as it very frequently does, in a small pigmented wart of the extremities, the corollary follows that extirpation of the primary lesion is of little use; the main point is evacuation of the axillary contents in the one case, of the inguinal lymph-glands in the other, otherwise the metastases herein rapidly infect more distant glands, and finally the blood. *Per contra*, melanotic cancer of the eyeball arises in pigmented connective-tissue corpuscles, and is a true sarcoma, not attacking the lymph-glands unless it affects also the viscera simultaneously. This generalisation, at least so far as regards the integumentary lesion, has been since independently corroborated by Unna, of Hamburg.²

Bearing upon this point of differentiating sarcoma from carcinoma and from epithelioma (terms I am compelled on clinical grounds to dissociate) is the maxim for microscopical guidance,³ that, when a thin section of any doubtful tumour is so examined, the latter must on no account be regarded as a sarcoma, *unless it consist wholly or in great part of spindle-cells arranged in bands*. There is no such neoplasm as a "round-celled sarcoma"; the growths so regarded being either carcinomatous; or derived from the lymph-glands, with other adenoid tissues; or, lastly, referable to those obscure malignant developments of unobliterated vestigial remnants which in the work last cited I have ventured to erect into a separate class under the title "Blastomata" (*βλαστός*, germ). In view of the measures of "anticipatory lymph-gland removal" above advocated, the necessity for precise recognition of the true pathological position of any suspicious growth is apparent.

¹ *Lancet*, October 15, 1892.

² "Nævi und Nævi-Carcinoma," *Berlin. klin. Wochenschrift*, i. 1893.

³ *Cancers and the Cancer-Process*, p. 117.

I have endeavoured, on clinical grounds, to lay down a strongly marked line of demarcation between the tumour-formations of the female mamma, at its different stages of development, and this carries with it significant indications for treatment. In this organ three periods demand recognition—the period of evolution, lasting from the age of fourteen to twenty-five; a middle, of functional activity; thirdly, a final, of devolution or obsolescence, from thirty-four onwards. The age of functional prime is, broadly speaking, devoid of tendency to tumour-formation, and so is here disregarded. The evolution-stage is characterized by the “Fibroma of Adolescence,” the well-known adenoid of young girls, a harmless local hypertrophy, commonly multiple, not associated with cysts, not running into cancer, yielding readily to treatment, and not demanding surgical interference in any shape. On the other hand, the devolution-period displays the “Cystic Fibroma,” sometimes called “Adeno-fibroma,” a lesion bearing some resemblance to the preceding, but always associated with cysts, not influenced by treatment, invariably merging in the end into some form of malignant disease, and so demanding early extirpation. This final decadence of the organ, it is hardly necessary to remark, is also the time whereat carcinoma must almost exclusively be looked for; and when, therefore, an *a priori* anticipation of its manifestation under the influence of due exciting causes should tinge our diagnosis of every breast-tumour. Carcinoma is but one of several phases of aberration in the permanent degeneration of the female breast, all brought about by mechanical or emotional interference with natural processes, and all finally passing into either carcinoma or sarcoma. A “lump in the breast,” previously to twenty-five years, may often be “severely let alone”; one after thirty-five can be disregarded only by the surgeon who is reckless to the verge of criminality.

It has been already indicated that for the man who surgically aims at curing cancer—and in these days heavy blame should surely rest on him who does not either approach it with that admitted object, or else does not plainly discern the sources of his failure—prompt recognition is everything, or very nearly so. So in my published writings I have strenuously laboured to enforce the vital consequence of *a priori* consider-

ations. We have to remember the usually obvious exciting causes of each local variety ; and we have also, from the environment, to consider who is or is not a likely subject for malignant disease. We shall thus, I think, seldom fail to arrive at that judicial diagnosis, which, in the earliest stages of disease, must ever be based upon a careful comparison of probabilities, and which, moreover, should never lose sight of the fundamental maxim : *No cancer without a definite cause.*

CASES OF MYXŒDEMA TREATED BY THYROID GLAND.

BY JOHN HAROLD, L.R.C.P. LOND., M.R.C.S. ENG.,

Medical Registrar, Charing Cross Hospital.

THE following cases are of clinical interest as exemplifying the beneficial effect of the rational treatment of myxœdema by the oral administration of thyroid gland.

H.S., a woman of sixty, well developed and well nourished, was admitted to Charing Cross Hospital on April 20, for the purpose of being treated with thyroid gland. There was nothing noteworthy in her family history; no history of insanity or neurosis. She had twelve children, never had acute rheumatism, and up to the age of fourteen resided in a calcareous district in Devonshire. There was no history of injury. The menopause occurred at 46. Hers was a typical case of myxœdema which had existed for fifteen years. The onset of the disease was gradual, commencing as puffiness of eyelids. Her friends soon remarked an alteration in the tone of her voice, and she became slow, apathetic, and clumsy in her actions, seemed to take but little interest in her daily vocations, and felt cold even in midsummer. The myxœdematous condition became more and more pronounced, and underwent no amelioration from the empirical treatment from time to time prescribed.

On admission to hospital she presented the appearance of a typical case of myxœdema. The physiognomy was striking—the face was uniformly much swollen, its skin was waxy-looking, relieved by a delicate pink flush over each malar bone, the eyes

seemed almost concealed by the hypertrophy of the eyelids, the upper and lower lips were swollen, the nostrils were wide, the nose flattened, the *alæ nasi* especially thickened, and the nasolateral fold obliterated. The lines of expression were coarsened, the eyebrows were scanty and slightly arched, the hair of the head was very thin, and in places the scalp showed a tendency to baldness. The majority of the teeth had fallen out, the tongue was enlarged and could not easily be protruded. The skin throughout the body was swollen, did not pit on pressure, and was harsh to the touch. There was defective action of the sebaceous and sweat glands. The hands and feet did not appear to be appreciably enlarged; the nails were brittle, misshapen, and ridged. The thyroid gland could not be felt, and there were no supraclavicular folds of a fatty or myxœdematous character. All her actions were extremely slow; walking was especially tardy, and she had many times fallen owing to her unwieldy gait. If she turned round quickly whilst walking in the street, she would instantly fall. Her speech was slow and monotonous, and she experienced difficulty in pronouncing words, the articulation at times being deliberate, thick, and hesitating. Memory for comparatively recent events was impaired. Frequent complaints were made of an unpleasant bitter taste and of a disagreeable odour, and she manifested unusual susceptibility to cold. Hearing and vision were normal, the bowels regular, the urine pale in colour, non-albuminous and non-saccharine. There was nothing abnormal in the heart or lungs, or in the abdominal viscera. The temperature ranged from 97° to 98° F.; the pulse was of low pressure. Examination of the blood showed it to be normal as to corpuscles and hæmoglobin. Although the disease was of long duration, the patient had no delusions or hallucinations.

Treatment by means of compressed tabloids of thyroid gland, five grains in each, was instituted on April 20. Three tabloids were given daily, and the patient was kept in bed throughout the treatment. On April 30 the patient's face seemed less swollen, and her hands were perspiring. Eight days later the hair of the scalp showed evidence of growing, the face presented a less wax-like appearance, and the patient was more cheerful. On May 18, desquamation of the hands

was noticed, the skin was supple, and a marked improvement in the general condition of the patient was quite apparent. She no longer complained of cold, but actually felt warm. By June 12 the hair had appreciably grown, the nails were less ridged, the face had undergone a complete transformation, the naso-labial furrow was evident, and there was marked improvement in the myxœdematous condition. On June 18 from desquamation of hands and forearms was noted, and on June 25 the patient remarked that she had not felt so well for over fifteen years. She was able to walk about at a moderate pace. The improvement is difficult to note from day to day, but it can be easily appreciated by reference to the accompanying photographs, for which I am indebted to the kindness of my friend Mr. Victor A. E. Corbould, of Charing Cross Hospital.

This case was of interest owing to the long duration of the disease, and to the ready response to the influence of the thyroid gland administered in the form of tabloids. I much prefer the tabloids to the glycerine extracts or to preparations of the so-called ferment of the thyroid gland; several of these preparations contain large quantities of inert substances. In the case under consideration unfavourable toxic symptoms developed once during the administration of the tabloids, in the form of nausea, headache, giddiness, and depression. Possibly in this case its long duration and the age of the patient accounted for her prompt reaction to the drug, or it might be due to idiosyncrasy. The loss of weight was another feature, as shown by the following table.

	st.	lbs.			st.	lbs.
April 23	12	2	May 28	10	3	
„ 30	11	8	June 4	10	1	
May 7	10	13	„ 11	9	12	
„ 14	10	7	„ 18	9	8	
„ 21	10	5	„ 25	9	9	

The urine during treatment was always high-coloured, non-albuminous, non-saccharine, and very rich in pigments.

Owing to the susceptibility of this patient to the influence of the thyroid, absolute rest in bed was enforced—a point of the greatest importance, until we know more of the action of our latest potent therapeutical agent.

The patient left the hospital with all the signs and symptoms of myxœdema removed.



BEFORE TREATMENT.



AFTER TREATMENT.

The following notes refer to a case of short duration.

A single girl, of twenty-three, who was of humble social condition, and whose family and personal antecedents furnished nothing of special interest, was admitted to hospital for treatment with thyroid gland. Symptoms of myxœdema were first noticed a year previous to her coming under observation. On admission it was learned that the catamenia commenced at seventeen and were irregular. Her physiognomy was peculiar: the face was expressionless and of good colour, the eyebrows slightly arched. The skin was dry and harsh, the hands and lower extremities showed a marked resilient œdema. Her hands were not much enlarged; the nails were striated and slightly grooved. There was no fulness in the supraclavicular regions. The hair was scanty and thin and dry on the scalp, almost absent in the axillæ and over the pubes. The thyroid gland could not be felt. The temperature was subnormal, the pulse of normal frequency and of low pressure. Abnormal subjective sensations of prickings and tinglings and of disagreeable taste and smell were complained of. Vertical and occipital headache was often present. The patient was slow in walking, swaying from side to side, and at times was markedly irritable and sometimes fretful. Her speech was monotonous, slow, hesitating. She slept badly, being much disturbed by dreams. She had no hallucinations or delusions. Her memory was defective. The teeth were decayed and loose, many had fallen out, and the gums were spongy. The urine was normal; micturition was performed only once daily. The tongue, mouth, and palate were normal. There was slight lateral spinal curvature.

A peculiar feature of this case was an associated condition of dermatolysis with patches of leucoderma and multiple lipomata, as shown by accompanying illustration.

Thyroid gland, in the form of compressed tabloids, was given in moderate doses. The patient was kept in bed during the treatment. No ill-effects were noted. Improvement was soon manifested. The myxœdematous infiltration disappeared, she became brighter and more active, her hair began to grow, she lost weight, and she left the hospital practically well. Some of the larger fatty tumours were removed without the least ill-effect.

The avoidance of physical exertion, a point insisted on by Pro-

fessor Grainger Stewart (*Practitioner*, Vol. li. p. 1), was secured by confinement to bed. It is of considerable importance during the treatment of myxœdema with thyroid gland. By this means we guard against some of the untoward effects which have been noted from time to time; and we also do so with more certainty



CASE OF MYXŒDEMA WITH MULTIPLE LIPOMATA AND PATCHES OF
LEUCODERMA.

if we restrict ourselves to the administration of moderate doses of thyroid—unquestionably a therapeutical agent requiring caution in its use.

I have to acknowledge my indebtedness to Dr. T. H. Green and Dr. Mitchell Bruce for kindly permitting me to publish these cases.

MECHANO-THERAPY IN CHRONIC DISEASES OF THE HEART.

BY A. SYMONS ECCLES, M.B.,

London.

SINCE the publication of the late Sir Andrew Clark's record of more than six hundred cases of cardiac valvular disease which had existed over five years without serious effects, there appears to be a marked tendency towards a more favourable prognosis in a large proportion of cases of heart disease. With this has also arisen a desire to reassure anxious patients, and to encourage those in whom a careful differential diagnosis reveals no serious lesion to disregard the conditions of functional disturbance on which their fears have been based.

At the same time, the remarkable success claimed for the Oertel treatment and other methods of "heart gymnastics," in cases varying in gravity from extensive non-compensatory dilatation to the minor forms of transient disturbance of rhythm, has led to some controversy and diversity of opinion, which yet shows no signs of abatement. While some writers extol the merits of gymnastics, exercises, and mountain-climbing in cases involving muscular debility, fatty degeneration, and insufficient compensation, others again declare that such methods of treatment induce the very conditions it is sought by these means to improve. Under these circumstances it may not be altogether uninteresting to describe briefly the combination of certain means employed by the writer in the treatment of various cases of chronic heart disease, especially as the recent epidemics of influenza have afforded many examples of heart affections, apparently in some

instances resulting from primary disease, complicating an acute febrile malady; or, as it would appear in the majority of cases, the occurrence of one or more attacks of influenza has led to the initiation or recrudescence of more or less serious symptoms in old heart affections, which for some time prior to the febrile disturbance had remained in abeyance.

Generally the plan adopted has been as follows:—

For a period varying from a fortnight to a month the patient has been kept at rest in bed. Either immediately, or after the lapse of a few days, general corporeal massage has been administered, at first once, and after a time, depending on the conditions of the case, twice daily. The character and duration of the manipulations have been modified according to the effects observed during and after the application of the remedy. In some cases it has been necessary to restrict the employment of massage to comparatively brief administration of firm but gentle centripetal friction of the limbs and trunk. Then from day to day the length and force of the manipulation have been gradually increased, till thorough massage, both rubbing and kneading, of the whole body is borne without exciting any disturbance of the heart or respirations.

As the patient becomes habituated to the massage, passive movements of the limbs are practised, the number and character of these varying with the state of the case. As soon as it is recognised that slight exertion may be made by the patient without cardiac disturbance, active movements of the limbs, assisted by the attendant, are prescribed. Very shortly after the initiation of these slight exercises they are followed by unassisted systematised movements, and by degrees resistance is offered by the manipulator to the active exercises practised by the patient.

At this stage difficulties will arise and disappointment ensue, unless the utmost care is taken to avoid over-exertion. The writer looks back with regret to cases in which too keen desire on the part of all concerned to record progress has led to relapse and failure, due to the want of judicious control of the force employed by the patient and the manipulator. Impatience is the stumbling-block most readily impeding recovery, and unless this can be curbed success will not attend the methods advocated.

All the foregoing treatment is employed while the patient still remains in bed, but as the massage and exercises practised in the recumbent position become more and more easily carried out without causing untoward symptoms, removal from a bed to a couch is permitted, and the exercises are practised in the sitting posture. This allows of greater diversity in the movements of the limbs, to which are added assisted, unassisted, and resisted exercises of the trunk. These are again supplemented by movements of the whole body, *e.g.* swaying backwards and forwards, the lower extremities being alternately raised in the same and in the opposite direction to the trunk. Crouching, kneeling, and rising from the sitting and horizontal positions are practised as before with and without assistance, and resistance is gradually increased on the part of the attendant. Finally locomotion is permitted, and exercise in the open air is added to the indoor manipulations.

Here again it is necessary to lay down rigid rules as to the length and duration of the drive or walk abroad. The patient must be at first, in any case, accompanied by a trustworthy person, who points out the direction and regulates the duration of every walk according to instructions. It so happens that in the majority of cases treated by the writer the outdoor exercise has been carried out under the most favourable circumstances possible in London. The patients being treated in a house close to Hyde Park, the whole of the park and adjoining gardens have been mapped out into some eighteen or twenty routes, till at the close of the treatment in successful cases the patient is able to walk by a circuitous route from Hyde Park Corner to Holland Park, through Hyde Park and Kensington Gardens, down the Notting Hill and back again, without stopping. To those who are familiar with the distance and conformation of the ground, this will doubtless be regarded as a fair test of the improvement in cardiac cases associated before treatment with muscular weakness, fatty infiltration, deficient compensation in valvular disease, and various forms of functional disturbance to be subsequently detailed. The writer does not claim any success in some cases, by reason of their apparent incurability by any means, and in others because the treatment has been abandoned before the active outdoor exercises have been

commenced, either at his own instigation, or at the request of the patient.

In one case of aortic regurgitation, in which the patient sought relief from sleeplessness, throbbing headache, and gastric disturbance, which he had attributed to disordered digestion, being apparently unaware of the valvular disease of his heart, the result of the treatment was excellent in so far as the relief of insomnia, vertigo, headache, and dyspepsia enabled the patient to pursue his vocation as a lawyer without the recurrence of these troubles for more than a year. The diastolic murmur, increased cardiac dulness, and diffused impulse were unaffected; but the pulse, which was only sixty-five per minute, rose under the treatment to eighty, and quite recently remained generally between seventy and eighty. Walking exercise, which had been attended by great fatigue unduly supervening, with occasional palpitation, is now enjoyed to the extent of three or four miles without any unpleasant consequences. During the month of rest, massage, and exercises, the weight rose from 9 st. 2 lb. to 9 st. 10 lb., and the patient, though still of a spare habit of body, weighs now, twelve months later, 10 st. 6 lb. in light clothing.

At first the patient was fed exclusively on light milk puddings, with milk as a beverage. After a fortnight of rest in bed, with gradually increased exercises, passive, assisted, and actively resisted, the dietary consisted of milk, rusks, *purées* of meat and vegetables, and a cupful of Benger's food at bedtime. Subsequently the midday meal consisted of any roasted meat, a small portion of green vegetables, and custard or jelly made with milk.

No fluids were given with the meals, but milk was given as a beverage half an hour after luncheon and dinner, and with rusks for breakfast. The sleeplessness, which had been very marked before the initiation of treatment, yielded in the first week to the plan of keeping the patient in the recumbent position day and night, and from five to seven hours' good sleep were obtained every night for three weeks. When the walking exercises were first attempted, the hours of sleep were reduced but after the third night the patient regained the power to sleep, and the throbbing in the head ceased. With slight attacks of transient insomnia this patient has enjoyed fairly

good health ever since, and plays golf for several hours every week without any ill effect. There is no increase in the area of cardiac dulness, and apparently the characteristic regurgitant pulse is less marked, the diastolic collapse of the pulse-wave being certainly less than it was when the case first came under observation.

The other case of aortic regurgitation in which the treatment was employed showed no improvement after three weeks, and the attempt to alleviate the symptoms was abandoned. The patient was a well-nourished lady, *æt.* 50, of highly neurotic temperament, who suffered greatly from the distressing pulsation of the carotids, and complained of occasional præcordial pain. The murmur was very loud over the ensiform cartilage, there was marked anæmia of the nails and hands when the arms were raised; and as the patient was intolerant of the enforced rest a sea voyage was prescribed, but without any good result.

The cases in which the combination of rest and massage with systematic exercises has proved most useful are those in which cardiac arrhythmia, with palpitation, an intermittent and irregular pulse, breathlessness on exertion, cold blue extremities, and enfeebled digestion, have been associated with the physical signs of dilatation, sometimes accompanied by systolic *bruit* after one or more attacks of influenza.

It is in these cases of increased præcordial dulness, with a weak and diffused impulse, and an apex beat to the left of its normal situation, sometimes beyond the mammary line, that the efficacy of Oertel's treatment has been most vigorously denied by the opponents of his methods. Lépine, Lichtheim, and others appear to oppose the treatment, alleging that in diseased hearts it produces the very condition leading to dilatation—namely, weakening of the walls with increased intracardiac pressure. Hausmann also considers it inapplicable to cases of deficient compensation after endocarditis, and in valvular disease with muscle weakness; though he advocates mountain-climbing and the withdrawal of fluids in certain cases of fatty heart and disordered circulation.

The selection of cases in which Oertel's treatment will be beneficial is perhaps rendered the more difficult in this country, inasmuch as it is not without some hesitation that the medical

expert advises a patient suffering from the consequences of an overworked heart, a weakened cardiac muscle, or inadequate compensation in valvular disease, to undertake a long journey involving the sea-passage fraught with so much discomfort to the majority of invalids ; if, at the destination resorted to, the treatment should prove unavailing, or, as it is asserted by opponents, damaging in such cases.

Nothnagel distinctly declares that he regards the Oertel cure as objectionable in all cases wherein there is any degeneration of the cardiac muscle, while he recommends gymnastics under careful supervision in dilatation and valvular lesions followed by degeneration. Rest under all circumstances appears to be regarded by most authorities as valuable ; though in chronic conditions there is a division of opinion as to how far this may be tempered by active exercises, even when carefully regulated. Judging from the results obtained in the comparatively few cases in which the writer has yet had opportunity for the employment of rest, massage, passive and active exercises with and without resistance, followed by rigidly prescribed and carefully limited outdoor walking, gradually increased according to the effects observed, it seems that such a method as he has employed gives promise of results in some cases as good as those claimed for the Oertel system, and in others it may serve as a preliminary introduction to the more severe conditions involved by resort to *Terraincurorte*.

In six cases of post-influenzal cardiac disturbance, characterised by dyspnœa and tachycardia following any exertion palpitation after meals, increase of cardiac dulness, a diffused impulse, and either a systolic or præsysstolic murmur heard loudest at the apex, the effect of the treatment was all that could be desired.

In two such cases, however, no apparent good resulted from the treatment, and in one the condition of the patient, after seven weeks' rest, massage, and exercise in the recumbent position, was so little improved that the resisted exercises in the sitting and erect posture were not attempted. Hæmorrhages from the bowel, abdominal pains, gastric distension, anorexia, and insomnia, alternated with heart-hurry, intermittence, vertigo, and muscular exhaustion. As soon as one symptom

subsided another replaced it, so that no steady improvement was gained. The evidence of dilatation varied from time to time. When there was breathlessness the heart appeared to enlarge, the area of cardiac dulness certainly increasing towards the left anterior axillary line during a paroxysm of combined dyspnoea and tachycardia. So long as the attack continued, the tumultuous action of the heart and the breathlessness were accompanied by an improvement in the regularity of the pulse; but afterwards on the resumption of the recumbent position, intermittence and irregularity recurred. The patient had been bidden by previous observers to disregard the cardiac symptoms in his case, and to take exercise; but every attempt to do so was followed by dyspnoea and tachycardia, with subsequent intermittent action of the heart and pulse. Strychnine, digitalis, strophanthus, caffeine, and many other drugs had been tried, and failed to give relief; sea air and the very best hygienic conditions were of no avail; but it is possible that, if the heart gymnastics had been pursued with regularity and rigid supervision, the organ might have been reduced to quiescence, as in the other six cases cited. In order that systematised treatment should prove useful in these cases, the medical adviser must have freedom of action in every respect, which is not always accorded either by patients themselves or by anxious relatives.

In four cases of anæmic obesity, in which there were no evidences of arterio-sclerosis, but wherein there was in one case frequent attacks of syncope, and in all breathlessness, dyspepsia, and irregularity of the pulse, with lassitude and general debility, the treatment resulted in the diminution of obesity, relief from dyspnoea and gastric disturbance, and decided augmentation of general strength. In five cases of functional disturbance of the heart, unattended by any physical signs, but accompanied by various more or less distressing symptoms of impaired function, *e.g.* palpitations, præcordial distress, anorexia, insomnia, and pseudo-anginal attacks, the treatment, pursued for periods of from one to two months, invariably succeeded in effecting complete relief.

Three such cases have lately been restored to the active enjoyment of good health; the patients have been able to pass through the somewhat severe ordeal of a London season,

dancing, riding, and walking without any discomfort; appetite, digestion, sleep, and muscular strength, all of which had been wanting, now sufficing to maintain the bodily vigour and mental buoyancy necessary to the fulfilment of social duties or pleasures which involve late hours in crowded rooms and other conditions not to be regarded as in any sense favourable to the maintenance of such hygiene as would be conducive to good health in robust individuals.

In all these cases, however, the patients have learned the value of resting in the recumbent position after a fatiguing morning or afternoon before they attempt to take food. The value of healthy exercise has been taught, and the necessity for taking precautions against the undue fatigue following over-exertion and irregular meals has been enforced. Thus, in spite of the excitement involved by participation in the whirl of fashionable life, a certain measure of rhythm has been imparted to their existence which they had previously ignored.

In regard to the cases cited, exhibiting the physical signs of dilatation with symptoms of deficient compensation after influenza, the existence of some toxic influence irritating the cardiac nerves, and producing vaso-motor disturbance, must not be overlooked. This is evidenced by the apparent variations in the area of cardiac dulness, which seemed to be increased during paroxysms of breathlessness and heart-hurry, while in the interval of quiescence the physical signs of dilatation were not so marked. It thus seems possible that the heart-muscle is capable of active relaxation of its fibres as opposed to the passive dilatation due to increased resistance only. Frequently the writer has observed almost sudden increase in the præcordial dulness, with displacement of the apex-beat outwards without any change in the bodily position of the patient. The same rapid alternation of contraction and augmentation in the size of the stomach has so often been noticed in the course of close observation of the gastric viscus in cases of *ectasia ventriculi* of purely muscular origin, that the writer must plead forgiveness for suggesting the possible existence of *active* relaxation of muscular walls of the heart and stomach in cases in which he believes he has been able to detect rapid variations in the size of these organs.

The occurrence of these phenomena, frequently observed about an hour after the ingestion of food, both in the heart and stomach cases, has suggested the probable influence of leucomaines and ptomaines absorbed into the circulation, acting as irritants upon the cardiac and gastric nerves governing the muscular action of the organs to which they are distributed. Whether this can possibly occur or not, it is a matter of ascertained clinical fact that the most curious alternations between cardiac and gastric disturbances take place in some of these post-influenzal cases, and that frequently not only do the intermittent pulse, tachycardia, and hurried panting respirations alternate with epigastric or general abdominal pains, flatulent distension, intestinal colic, and diarrhoea, but occasionally all these symptoms recur simultaneously and apparently as a result of auto-intoxication. For this reason, in these heart-cases it is necessary to pay the strictest attention to the quality and quantity of the food ingested, and it has often been observed that so long as the patient has been kept on carefully prepared diet in a finely divided and easily assimilable state, the distressing symptoms referable both to the cardiac and gastric functions subside. A premature attempt to vary and increase the meals has resulted in the recurrence of the cardiovascular and digestive derangements.

The *rationale* of the treatment of certain chronic diseases of the heart by a combination of rest, massage, assisted and resisted exercises, followed by out-of-door walking carefully graduated, is based upon—

- (1) The rest afforded to the overstrained or enfeebled heart by the adoption of the recumbent position for a time.

- (2) The aid given to the circulation by the mechanical centripetal pressure exercised on the limbs and trunks by massage.

- (3) The more rapid oxygenation induced by the acceleration of the circulation, and the diminution of peripheral resistance by the same means.

- (4) The improvement in general nutrition, the elimination of waste products, and the increased metabolism induced by the passive and active exercises in and out of doors.

- (5) The careful preparation and selection of suitable food,

coupled with the aid to digestion afforded by abdominal massage and exercises acting directly on the walls of the abdomen, and exercising pressure on its contents.

(6) The substitution of regular, graduated, assisted, and resisted movements for the spasmodic and ill-regulated exercise taken by patients suffering from cardiac functional disturbance with or without organic lesion.

Reviews.

Lectures on Auto-Intoxication in Disease—or Self-Poisoning of the Individual. By CHARLES BOUCHARD, Professor of Pathology and Therapeutics, Member of the Academy of Medicine, and Physician to the Hospitals of Paris. Translated, with a Preface, by THOMAS OLIVER, M.A., M.D., F.R.C.P., Professor of Physiology, University of Durham, &c. Philadelphia: The F. A. Davis Company. London: F. J. Rebman. 1894.

WE are glad to see a translation of Professor Bouchard's lectures on Auto-Intoxication in Disease, for even if the lectures contain much matter that is still debatable, and although in the present state of our chemical knowledge we have not been able to isolate many of the poisons which are so harmful to the individual that elaborates them, yet the views here expressed are so suggestive that a careful study of the author's theories and methods will be of the utmost value to every thinking medical man.

The author's experiments and views on the toxicity of urines are extremely interesting, and he has gone the length of creating a unit of toxicity or "urotoxy"—namely, the toxic amount necessary to kill a kilogramme of living matter. This seems generally to have been in the form of rabbit. It is perhaps rather an assumption to state that if one kilogramme of man forms in twenty-four hours what is sufficient to kill 464 grammes of animal, he forms in twenty-four hours almost one half of what is necessary to kill himself. The author of course gives full weights, and works the subject out with mathematical care, but it is always well to bear in mind that poisons, no matter what they are, often behave in widely different ways in different animals, and we feel that we should require more evidence before we could admit, in their entirety, the conclusions which have been drawn.

The author's account of uræmia is of very great interest, and no less than seven different toxic principles have been discussed. To those who have seen and studied different cases of uræmia this will be no surprise, for variations in the course of such cases

are extremely common. But it remains now to the chemists to separate these poisons so as to place the cases into their proper groups. We think no one will disagree with the excellent summary of this condition, which we cannot do better than give in the author's own words. "Uræmia comprises various and multiple intoxications to which are attributable various symptoms. It is a mixed poisoning, not by urine (as one calls it by misapplication of words), but by what should have become urine. . . ."

Auto-intoxication of intestinal origin is fully discussed, and the most recent account of intestinal antiseptics reviewed. Perhaps not every reader will be prepared to go as far as the author in his views on dilatation of the stomach, which he finds extremely common, and at the root of the most various diseases. The physical signs of this condition are discussed with great care, and the method of diagnosing the dilatation given in great detail, but no mention is made of the inflation of the stomach by the administration of an effervescing mixture given in separate doses, which has always been considered an excellent plan for demonstrating the greatly extended percussion note. The remarks given on various dyspepsias and their treatment are thoughtful and scientific. Typhoid fever is fully discussed, and its rational therapeutics considered. Poisoning accidents in diabetes and cholera form the subject of further lectures; and the work closes with the author's views as to the therapeutics of self-poisoning and a general recapitulation. We cannot remember having read more suggestive lectures on what is a very wide and important subject, that of the poisoning of an individual by poisons elaborated in his own economy; and we strongly recommend this work to our readers, as it is brimful of sound and thoughtful material and not a few very suggestive working hypotheses.

Hydatid Disease. Vol. II. By the late JOHN DAVIES THOMAS, M.D. (Lond.), F.R.C.S. (Eng.) Edited and arranged by ALFRED AUSTIN LONDON, M.D. (Lond.) Sydney: L. Bruck. London: Baillière, Tindall, and Cox. 1894.

DR. THOMAS, although dying young—in his forty-ninth year—and although unfit for work for the last three years of his short life, in this, and in his previous book on the same subject, has left evidence of an industry, conscientiousness in work, and clinical and scientific aptitude, which, had he been spared for a few years longer, could not have failed to yield much valuable fruit. As it is, he has done much for the study of hydatid diseases in Australia, and his contributions to the subject have more than a local value. We gather from the preface to the present volume that it is not so complete as the author had

planned; indeed, as a treatise on hydatids it is deficient in many respects, seeing that it contains no account of the hydatid cyst itself or of the life-history of the parasite. These would doubtless have been supplied had Dr. Thomas lived, and then we certainly should have had a book of great value. But although the work in its present state is incomplete, it is nevertheless a most valuable fragment, and one of which it is quite safe to foretell that it will supply many a fact and hint to the literature of hydatids in the future.

On Common Neuroses; or, The Neurotic Element in Disease, and its Rational Treatment. By JAMES F. GOODHART, M.D., F.R.C.P. Second Edition. 8vo. Pp. 135. London: H. K. Lewis. 1894.

THIS little book, which the author appropriately dedicates to Dr. Wilks, contains the three lectures which Dr. Goodhart delivered before the Harveian Society of London in 1891. The first edition was quickly out of print, and the present issue is practically a reprint, the author wisely refraining from taxing the attention of the reader by adding cases or other new matter. These lectures are full of interest, and we have no hesitation in recommending them to our readers' perusal.

Spinal Caries (Spondylitis, or Inflammatory Disease of the Spinal Column). By NOBLE SMITH, F.R.C.S. Edin., L.R.C.P. Lond., Surgeon to the City Orthopædic Hospital. Cr. 8vo. London: Smith, Elder, and Co. 1894.

IN 186 pages Mr. Noble Smith has recorded his experience of Spinal Caries, and has given a fairly full account of selected cases treated by means of the "adaptable metal splint" introduced by his colleague Mr. Chance. Of this the author speaks in the highest terms, but few of the cases having failed to improve while wearing this light and easily adapted apparatus.

The drawings (eighty-eight in number), for which the author is alone responsible, are excellent. Many are original, others are from museum specimens and well-known authors. For the rest of the volume we have less praise to offer, and we think it might have been considerably curtailed. No index is appended, and consequently it is difficult to ascertain the author's views on any special point. The pathology of the disease is scarcely touched upon, and there is no attempt at an arrangement of symptoms in a way calculated to assist the student desirous of gaining information.

Some anatomical points are certainly open to criticism. Under the term *psoas abscess*, it is to be presumed that the author includes a fluid collection either deep or *superficial* to the

psoas fascia, otherwise we fail to understand how a psoas abscess sometimes "makes its way into the spermatic canal" and "scrotum," or "opens in the perinæum"; how an abscess originating in the dorsal region and "passing through the aortic opening in the diaphragm" will "pass along the psoas."

Under the head of differential diagnosis we regret to find the term "Cancer" used in a sense scarcely to be considered scientific in this year of grace; "primary cancer" of the vertebræ is mentioned as occurring, and twice in one chapter sarcoma and cancer are evidently used as synonymous terms.

On the subject of treatment the author considers "recumbency and extension" as far inferior to simple fixation by means of a splint. "Counter-irritation" is said to belong "chiefly to a past age." Laminectomy is rarely to be adopted for the relief of paraplegia; and when abscess has declared itself, antiseptic drainage and daily syringing are preferred to the method of treatment adopted by Billroth and his followers. No statistics however are given, and from the list of cases appended we have no means of forming an opinion as to the relative advantages of the two methods.

The Sanitary Inspector's Handbook. By ALBERT TAYLOR, Associate of the Sanitary Institute, Chief Sanitary Inspector to the Vestry of St. George's, Hanover Square. London: H. K. Lewis. 1893.

THIS work is said to aim at "supplying practical information on the various matters which come daily under the notice of the sanitary inspector, and not at being an exhaustive work of scientific reference." We think it fulfils its aims, and will prove of very great help indeed to all engaged on sanitary work.

Mr. Taylor deals in the most practical way with all the different branches which come under the notice of the sanitary inspector; and the text is enriched with abundant illustrations. We have seen such an amount of bad work, and such deplorable consequences resulting from so-called "sanitary" investigation and engineering, that it is quite refreshing to find a writer laying down the law—and exposing fallacies—as fearlessly as does the present. The numerous extracts from Acts of Parliament, and the quotations from the regulations as to sanitary inspectors of the Local Government Board, should be of inestimable value to students and officers alike.

The book is gracefully dedicated to Professor Corfield; and from the amount of practical information which it contains, coupled with the excellent illustrations with which the work abounds, we cannot but think that it will prove of the greatest service to the sanitary inspector and to those seeking to qualify for such an appointment.

A Catechism of Hygiene and Sanitary Science. In Fifteen Parts. By PATRICK HEHIR, M.D., F.R.S.E. Part I. "Water." Calcutta: Thacker, Spink, and Co. 1894.

THIS is the first part of a Catechism of Hygiene and Sanitary Science, and we gather from the back of the book that fourteen others are to follow. The present part, the subject of which is "Water," contains 598 pages of printed matter, made up of 2,353 questions and answers to them.

The author candidly admits that the work is intended for the purpose of enabling students to pass examinations. In other words, it belongs to the objectionable class of "cram" books; and, so far as we are able to form an opinion of it, it is not one of the best specimens of its kind.

Clinic of the Month.

Pernicious Anæmia in Youth.—Dr. Gowers records a case of pernicious anæmia occurring in a man, under Dr. Nicholls of Croydon, at the remarkably early age of twenty-one. The skin had the characteristic tint, and the gums and conjunctivæ were very pale. He was feeble, and short of breath. The hæmoglobin was only a little over 30 per cent., and moreover the percentage of red blood corpuscles was scarcely 25. An examination of the eyes showed numerous flame-shaped hæmorrhages in each retina, and one or two, of more irregular shape, close to the disc. A very grave prognosis was obvious, and the course of the malady corresponded. In spite of careful treatment he steadily failed. There was some elevation of temperature for a few days, and pyrexia returned on March 19, when a large hæmorrhage occurred in the right eye. Vomiting set in, and the patient died on March 21. The course of the disease was rapid, but the significance of the later rapid failure may easily be misconceived. The blood-making tissues depend for their nutrition and functional power on the blood which they have formed; when this has sunk to a low percentage, its effect upon them must be to increase their incapacity with augmenting rapidity. Such a case lends itself to the current tendency to associate all sorts of diseases with specific organisms. But another hypothesis deserves consideration. The failure of tissues soon after they complete their development is not unknown in other structures. We see it, for instance, conspicuously in the so-called "hereditary ataxy" and in some late cases of pseudo-hypertrophic paralysis and allied maladies. We must ascribe these to an inherent defect of vital endurance on the part of the tissues concerned. It may be that a similar defect of vitality or of vital endurance in the blood-making tissues is the cause of such cases of pernicious anæmia. (*Brit. Med. Journ.*, vol. i. p. 904, 1894.)

Treatment of Malignant Pustule.—In a case of malignant pustule, which came under treatment during the

second or third week after inoculation, Sertini resorted to Maffucci's treatment. This consists in the injection of carbolic acid into the pustules and surrounding tissue. But whereas the originator of this treatment used 1 per cent. solutions, Sertini from the first employed a strength of 3 per cent. and 2 per cent. A gramme of fluid was used for each injection; and eight, three, and two were given during three consecutive days respectively. Corrosive sublimate dressings were applied, and carbolic acid given internally also, without the appearance of any marked carboluria. On the fourth day the temperature subsided, and thereafter the case progressed favourably. The writer states that the source and origin of the infection were indisputable, and that its nature was confirmed bacteriologically. (*Lo Sperimentale*, vol. i. p. 4, 1894.)

Permanganate of Potassium in Opium Poisoning.
—Drs. Gregg and Moreland relate the following case: A man who had taken about two and a half ounces of laudanum came under treatment two hours and a half later. He was then in a very advanced state of coma, his respirations being only four to the minute. A solution of permanganate of potassium was prepared, half the strength of a saturated solution; and two drachms of it were injected hypodermically. An hour and a half later, atropine having in the meantime been employed without any effect (he was barely alive), the dose of the permanganate was repeated, after which the respirations seemed to be slightly more deep. Half an hour later a third injection was given, when there was a perceptible improvement in the breathing, and the face became less livid. At intervals of a quarter of an hour three more doses were given, and after each there was some definite improvement, until after the last the corneæ became sensitive. No further injections were given, and he recovered with the treatment usual in such conditions. In all twelve drachms of the permanganate of potassium were used. (*Med. News*, Philadelphia, May 5, 1894.)

Gastroectasis and Enteroptosis.—Dr. H. C. Tweedy, of Dublin, records the following case of dilatation of the stomach, with enteroptosis. A labouring man, aged thirty-five, was admitted to hospital suffering from gastric trouble of many years' duration. Examination disclosed enormous dilatation, with chronic gastric catarrh and paresis of the muscular coat. After about a week he died of exhaustion from several convulsive seizures. Post mortem—the stomach occupied the entire superficial space, the fundus reaching to the sixth intercostal space. The greater curvature occupied both iliac fossæ, and extended almost to the pubes. Nothing else could be seen save a wedge-

shaped portion of the left lobe of the liver, which was inserted into a sort of sulcus corresponding to the lesser curvature. The capacity of the stomach was found to be 160 ounces. On raising the stomach the transverse colon was found immediately behind it, and in close apposition to it, forming a long curve with sharp angles at the hepatic and splenic flexures, and its lowest portion about two inches above the pubes—a condition described by Glénard under the name of enteroptosis. The ascending and descending portions of the colon occupied their normal positions. Glénard based his observations on the fact that the alimentary canal, from the stomach to the rectum, is suspended by ligamentary attachments at certain points; that at several of these fixed points sharp angles are formed, and that if any of the ligaments become relaxed or give way it is attended with two results—first, a falling (ptosis) of that portion of the alimentary tract; secondly, in certain cases—for example, in the transverse colon—increased traction on the next fixation point, causing obstruction of the passage of ingesta, and even partial stenosis of the intestine itself. Glénard believed that the condition is most likely to arise in the right portion of the transverse colon. He details several physical signs as diagnostic of this condition, but the physical sign on which he lays most stress is *corde colique transverse*—the sensation imparted to the hand on palpation as of a ribbon-like band, one centimetre in width, which he believes to be the displaced transverse colon, lying over the aorta above the umbilicus. His reason for believing this is that pressure in the right iliac fossa on the ascending colon produces rumbling sounds in the *corde transverse*. The transverse colon is the first part affected. Next follows relaxation of the mesentery, and the small intestine descends into the pelvis. The stomach is then drawn down (gastroptosis); and subsequently there may be a falling of all the viscera, which is termed splanchnoptosis. In the case now described, however, the enteroptosis was distinctly secondary to the dilatation of the stomach, or, at least, coincident with it. (*Brit. Med. Journ.*, vol. i. p. 126, 1894.)

Non-Hereditary Friedreich's Disease.—Dr. Hector W. G. Mackenzie records a case of non-hereditary Friedreich's disease in a well-nourished and healthy-looking girl of thirteen, who sought advice for curvature of the spine. When seven years of age she had measles, and from that date she became weak on her legs. After a time she was observed to limp and fall about, and she complained of giddiness on standing and walking. She was said to have been always fairly intelligent, but she was not very successful in writing or doing needlework, owing to jerky movements of her hands. The family history

was very good, and showed an entire freedom from any tendency to nervous disorder. With regard to the diagnosis, one had to consider locomotor ataxy and cerebellar tumour in addition to Friedreich's disease. Cerebellar tumour could be excluded by the duration and progress of the disease, and by the absence of such characteristic symptoms as headache, vomiting, and optic neuritis. In differentiating between locomotor ataxy and Friedreich's disease the following points were of importance: (1) The age was the usual one for the latter, and would have been very uncommon for the former. (2) The onset after measles has been previously noticed in cases of Friedreich's disease, especially by Dr. Ormerod. No such relation is known to exist in regard to locomotor ataxy. (3) Syphilis is considered by Dr. Gowers as one of the commonest causes, if not almost the only cause, of locomotor ataxy. In this case there was no history and no sign of syphilis. (4) The presence of jerky movements of the arms and head, and the swaying unsteady gait, were peculiarly characteristic of Friedreich's disease. (5) Nystagmus was valuable as being a fairly constant symptom of Friedreich's disease, while absent in tabes. (6) The absence of lightning pains, anæsthesia, crises, Argyll-Robertson pupil, and optic atrophy, although the duration had been six years, pointed away from tabes. (7) Although the speech was unaffected, this was not of great moment, as the affection of speech in Friedreich's disease is often a late phenomenon, and may remain altogether absent. (8) The complication of lateral curvature has been previously observed in cases of Friedreich's disease, but apparently not in locomotor ataxy. (*Amer. Journ. of the Med. Sciences*, vol. cvii. p. 371, No. 4, 1894.)

Post-Roseolar Disseminated Sclerosis.—Lannois reports the case of a youth of eighteen who was admitted under his care suffering from paralysis agitans. The family and personal history only revealed a febrile affection, apparently roseola, at the age of eleven. Within a few months this was followed by the first indications of trembling, which had increased since progressively, and prevented the patient from doing any kind of work. On admission the discrepancy between the patient's age and appearance was at once noticeable, no development having apparently taken place since the twelfth year, and no deformity being present. The trembling affected the upper limbs especially, increasing under the influence of emotions, heat, or cold, and disappearing during sleep only, though diminishing on voluntary movement. The affection imparted a quivering to the whole body, but did not extend to the face. On walking or standing the "Parkinsonian" attitude was

evident; and looking back to the origin of the affection, the author has no hesitation in ascribing the cause to the specific fever during childhood. [*Practitioner*, Vol. LII. p. 122.] (*Lyon Médical*, vol. i. p. 465, 1894.)

Ovarian Cyst following Electrical Treatment.—Rendu describes the case of a woman, aged forty, who had married eighteen years before without appearing to have been pregnant at any time. Menstruation, which had only rarely manifested itself in youth, ceased entirely fifteen years ago. During 1893 she had recourse to electro-therapeutic treatment, in the shape of a series of large copper and zinc discs applied to various parts of the trunk during the night. Abundant florid menstruation took place during the six succeeding months, the period lasting from six to eight days. Simultaneously the breasts enlarged, dyspeptic troubles set in, and the abdomen also gradually increased in size. On being consulted, the author found a swelling adjoining the uterus, and suspected an extra-uterine foetation. One month later the patient had lost flesh, and examination proved the presence of an ovarian tumour requiring early operation. The symptoms becoming aggravated, the tumour was removed, and found to be cystic in nature. The point of importance is the succession of events; and the question suggested, as to any connexion between the use of electricity and the development of the growth. (*Lyon Médical*, vol. i. p. 475, 1894.)

Extracts from British and Foreign Journals.

Treatment of Tuberculous Peritonitis.—Guignabert describes a method he employs in the treatment of tuberculous ascites which was first suggested by Rendu. It is most applicable to this particular form of peritonitis. It consists in introducing a fine trochar and cannula through the abdominal wall, midway between the umbilicus and anterior superior iliac spine. While the flow is diminishing, a hypodermic syringe is five times charged with camphorated naphthol, and the contents are passed into the abdomen, the cannula being made use of for the purpose. The puncture is subsequently closed by means of aseptic wool and gauze. Hereafter the peristaltic action of the intestine serves to distribute the naphthol, which produces insignificant pain for only a few hours. Furthermore, during the first few days the temperature shows an evening rise, and the ascites apparently increases, though the fluid subsequently disappears. Ultimately masses of adhesion will be felt, and these gradually diminish. During the operation the strictest antisepsis is required. (*Journal de Médecine de Paris*, p. 155, 1894.)

The Heart in Facial Erysipelas.—Contrary to Jaccoud's opinion, from the observations of Galliard, disease of the heart to be referred causally to erysipelas is a somewhat rare occurrence; he found this complication only six times in 350 cases. The diagnosis is not easy, for not only are previously existing murmurs to be excluded, but also those of an anæmic and febrile nature. The affection, so far as the heart is concerned, may arise as endo-, peri-, or myocarditis. The endocarditis may be simple and benign, the origin of which is not yet clearly established; or infectious and malignant, and this is conditional on direct settlement of the micrococcus of erysipelas on the endocardium and on the neighbouring valves, as has been observed, amongst others, by Achalme. The latter form Galliard has never observed; the former, only once. The murmur existing during the course of the disease was no longer observable when the patient was discharged. Pericarditis was

observed in two cases only. On both occasions it was a question of simple slight pericarditis, or of pericarditis of medium severity, which on the departure of the patient had again entirely disappeared, leaving, perhaps, slight traces. But there occurs also a severe septic form. This runs a rapid course, with serous or purulent effusions, and further complications such as pleurisy, pneumonia, nephritis; and presents a most unfavourable prognosis. Finally, there occur cases in which the pericarditis is not to be referred directly to the erysipelas, but to a complicating nephritis; but such cases cannot be strictly classed as "erysipelalous pericarditis." Myocarditis is extremely seldom to be regarded as the result of erysipelas. Galliard saw it in one (cured) case. Notwithstanding the rarity of the affection described, it is important in practice always to watch the heart in erysipelas, and to inaugurate appropriate treatment when a case occurs. (*Centrbllt. f. innere Med.*, No. 16, 1894.)

Affections of the Middle Ear in Infants.—C. Rasch, in the course of seventy successive post-mortem examinations made on infants less than two years old, inspected the middle ears on sixty-one occasions, and found an absence of any abnormality in five cases only. Thirty-two of the examinations revealed a double purulent inflammation; seven, a purulent affection on the one side, while there was only a serous exudation on the other side; in the remaining fifteen, one of the two ears contained exudation only, while double caries of the bony portions was found in the remaining case. The author then proceeds to quote similar observations on the part of other authorities, and disposes of the suggestion that such exudations can be physiological in nature. Among the bodies examined, nineteen were those of infants six to twelve months old, and only three were less than one month old. One of the latter was only one day old, and in this case no exudation was found. The author also states that no instance of exudation before the third day has been published. As to the affections for which treatment had been sought, twenty of the patients were brought to the institution suffering from rickets, eight from syphilis, ten from atrophy, and fifteen from tuberculosis. Moreover, pertussis had existed in eleven, and an intestinal catarrh in fourteen cases. Finally, in the clinical histories there was evidence of past broncho-pneumonia in forty-three instances; all the exudations were examined microscopically, and all the specimens showed leucocytes, microbes, and epithelium, pneumococci also being found in thirty-three out of forty-three cases. The latter did not appear to cause perforation, as this condition existed four times only, the pneumococcus at the same time being absent. The author then discusses the symptoms produced during life,

and states that in ten out of the sixty-one cases meningitis was suspected or diagnosed prior to death, the brain and membranes being found healthy post mortem. In all of these cases a double purulent exudation was discovered. He then suggests that such a condition after recovery may lead to permanent deafness or deaf-mutism, and that the diagnosis between double otorrhœa and true meningitis may become very difficult. Nevertheless he lays stress on the importance of deciding the question when necessary, and possibly saving the life of a child by timely puncture of the tympanum. (*Jahrbuch für Kinderheilkunde*, vol. xxxviii. Nos. 3 and 4, p. 319, 1894.)

Sulphur in Diphtheria.—Professor Bäumler, of Freiburg, recalls the attention of the profession to the use of sublimed sulphur as a local application in diphtheria. Having observed a great number of cases of diphtheria, he has been impressed by the effects of the local application of sulphur to the affected parts. These effects were infinitely better than those of any of the multifarious local applications tried before. Having almost exclusively used it now for more than seven years, he does not hesitate to plead for its more extensive use. He was first induced to try it by the recommendation given to this local treatment by Liebermeister, who says, "As a local application, I generally use powdering with crude sublimed sulphur, by abundantly applying with a thick soft camel-hair brush the dry powder to the diseased mucous membrane. This powdering of the pharynx with sulphur is, according to circumstances, repeated every hour or every two hours, or only three or four times a day." On the strength of several years' experience he entirely concurs with Liebermeister's further remarks: "I have the impression that by this treatment, when commenced early, I attain more than by any other which I had tried before, and that with these applications the cases, on an average, take a considerably more favourable course than without it." Dr. Bäumler has repeatedly seen cases, in which gangrene of the uvula and part of the soft palate seemed inevitable, take a favourable turn in a few days, the membranes becoming detached and the swelling going down, leaving much less loss of substance behind than was to be feared when first seeing the case. With less extensive disease he could frequently notice the first effects of the application to consist in a somewhat increased injection (not congestion) of the mucous membrane on the borders of the exudation, the latter becoming more sharply defined at its edges after a few applications, and then beginning to get loose and be detached. In the majority of fresh cases of diphtheritic sore throat, as well as of lacunar tonsillitis, two or three applications a day seemed sufficient, the

patients in the meantime, when able, gargling with a weak solution of permanganate of potassium, and being subjected to such general treatment as the case required—cool baths or the wet sheet, or occasionally a dose of antipyrin when there was high pyrexia, and great care as to feeding by mouth, or, if necessary, by rectum. The action of this remedy being a merely local one, its principal field of usefulness will be diphtheria of the fauces, where it can be applied directly and abundantly. The larynx, also, and in certain cases the upper part of the trachea, may be reached by using a curved insufflator for blowing in the powder. But no effect can, of course, be expected when the disease extends into the bronchial tubes, or when the general blood-poisoning has gone beyond a certain degree; nor even locally, where extensive sloughing has already taken place in the throat, and when, in consequence thereof, rectal feeding is the only, and then mostly insufficient, means to prevent exhaustion. (*Brit. Med. Journ.*, vol. i. p. 460, 1894.)

Anæmia of Children.—In an anonymous article it is recommended that children who are the subjects of hæmophilia should be given, three times a day, one or two drops of solution of perchloride of iron in water, and with their food a dessert-spoonful of syrup of hæmoglobin in a little water. (*Journal de Médecine de Paris*, vol. i. p. 206, 1894.)

Treatment of Renal and Cardiac Disease with Caffeine.—M. Pavinsky strongly recommends a combination of caffeine with the salts of sodium—the benzoate and salicylate. In a failing heart where digitalis and strophanthus have lost their effect, caffeine in this form is of much use. As a diuretic it is invaluable, especially in cases of long-standing renal disease where the heart is failing. From experiments in the laboratory and observations on patients, the author comes to the conclusion that caffeine acts, not specially on the cardiac nerves, but rather on the vasomotor centres, by raising the blood-pressure in the vessels and circulation generally. The total dose given in the day should be either 1 gramme 25 centigrammes of caffeine benzoate of sodium; or 1 gramme 50 centigrammes of caffeine salicylate of sodium; or 40 centigrammes of caffeine (pure). (*Journal de Médecine de Paris*, vol. i. p. 189, 1894.)

Chloroform and Chloral Hydrate in Puerperal Eclampsia.—Dr. Gelli brought before the Accademia Medico-fisica Fiorentina six cases of puerperal eclampsia treated with inhalations of chloroform followed by the administration of large doses of hydrate of chloral—twelve to twenty-four grammes in the twenty-four hours. Only one case died; of the other

five, two aborted, and in one the forceps was applied. Dr. Gelli insists that no bad results followed the use of chloroform in such cases, and he strongly advocates the complementary use of chloral hydrate, which had been so successful in his hands. (*Lo Sperimentale*, vol. i. p. 126, 1894.)

The Pulse Curve in Diminished Atmospheric Pressure.—Liebig thinks that it may be accepted from numerous experiments that diminished atmospheric pressure has no remarkable influence on the form of the pulse curve. Such an influence appears, however, if the breathing becomes laborious and the pulse is quickened. The curves then mostly become somewhat smaller; they often present a dicrotic character; or they assume forms of another kind, smaller and less full in circumference, which also sometimes show an increase in strength of cardiac impulse. (*Centrbll. f. klin. Med.*, No. X., 1894.)

Treatment of Acute Rheumatism with Salophene.—M. Koester reports that with daily doses of from four to six grammes of salophene the pain of rheumatism disappears in three days, and the temperature falls. The only toxic effects of the drug are slight tinnitus and vertigo. (*Journal de Médecine de Paris*, vol. i. p. 165, 1894.)

Bromide of Strontium in Acute Gastric Catarrh.—Dr. Carselli has found that the action of this drug in such cases is remarkable, given in the following way:—

Bromide of Strontium, gr. 30.

Syrup of Orange, ℥i.

Distilled water, to make ℥iv.

To be taken three or four times daily before and after food. It acts in two ways: as a sedative to the nerves of the stomach, and as an antiseptic. (*Lyon Medical*, p. 457, 1894.)

Pneumonic Endocarditis.—Bignami reports on the conditions of five cases of endocarditis in the Pathological Institute of Professor Marchiafava, which, as could be demonstrated by microscopical examinations and cultivation, originated in the diplococcus of pneumonia. The first case is specially noteworthy, inasmuch as it had led to a communication between the aorta and pulmonary artery. The author quotes the important researches of Netter and Weichselbaum, and corroborates their statement that endocarditis from the presence of pneumococcus in the right ventricle is far commoner than the forms due to other causes. Of twelve cases of pneumonic endocarditis he observed it in two. On the other hand, Bignami cannot indorse the rarity of embolus in this form. In particular, in the

aortic walls that are atheromatous the ulcerative process must spread by the pneumococci, just as if the infectious vehicle appeared to cling better to the roughened surfaces. Bignami has never seen the green colour of fungus-vegetations which Weichselbaum reports in one of his seven observations. The greater number of cases of pneumonic endocarditis occurred in Rome in the epidemics towards the end of winter and in spring. They are rare in the winter and autumn epidemics, a fact remarked upon several years ago by Marchiafava. (*Centrblt. f. innere Med.*, No. 16, 1894.)

"Weakened Heart."—L. Herz frequently observed in recruits during their first period of service, after severe exertion (drilling, &c.), the onset of palpitation, breathlessness, pain in the side, and other symptoms, often increasing in a sudden and remarkable manner, without the appearance of any distinct objective condition. These appearances showed themselves mostly in such recruits as had not been accustomed to great physical exertion, but had been used rather to quiet and sedentary occupations (office clerks, &c.) It is a question in such cases of a congenital or acquired cardiac weakness. During rest such a heart beats quietly, but on every great exertion it becomes irregular in action, and the man becomes breathless. In this stage percussion reveals trifling increase of præcordial dulness, or absolutely none; the cardiac sounds are dull, the second being often accentuated; the apex-beat is visible under the left nipple; the pulse also is small, soft, and quick. There is a marked contrast between the apex-beat and the pulse. Generally, but not always, there occurs accommodation of the heart to the increased demand on it—a strengthening of the cardiac muscle. (*Centrblt. f. innere Med.*, No. 10, 1894.)

Treatment of Lead-poisoning with Monosulphate of Sodium.—Dr. Peyson gave thirty centigrammes of white lead to two dogs every day for twenty-three days, and then one gramme per diem for fifteen days, with the result that the urine contained only traces of lead. One dog was extremely ill; to it was administered a gramme of monosulphate of sodium a day, with the result that it was well in eight days. Both dogs were then killed, and on analysing their livers it was found that the animal which had taken sulphate of sodium had only traces of lead in its liver, whilst the liver of the untreated dog contained large quantities of lead. (*Journal de Médecine de Paris*, vol. i. p. 205, 1894.)

Notes and Queries.

TEA TABLOIDS.—The firm of Messrs. Burroughs, Wellcome, and Co. have already earned a well-deserved reputation for the excellent quality of their “tabloid” preparations. They have now made a new departure in presenting us with tabloids of compressed tea, which are said to secure to the tea-consumer many important advantages. Pure tea is employed, and only that of superior quality; and each tabloid contains an exact and uniform quantity, thereby yielding an infusion of uniform strength. The convenient portability and keeping qualities of the tabloids cannot fail to be appreciated by many travellers, at schools, and at large factories.

Messrs. Burroughs, Wellcome, and Co. have taken the greatest care to prevent the presence of any green or uncured tea-leaf.

Prescriptions.

FOR CONDYLOMATA.

R Acidi Tannici,
Hydrargyri Subchloridi,
Amyli, partes æquales.
Misce et fiat pulvis.

To be dusted on the affected parts.

FOR TAPE WORM.

R Pelleterinæ Tannatis gr. x.
Spiritus Rectificati ℥j.
Glycerini ℥ij.
Tincturæ Aurantii ℥j.
Aquæ ad ℥iij.

Misce et fiat haustus.

Half to be given fasting early in the morning, to be repeated
in half an hour, and to be followed by a dose of castor-oil.

FOR CHRONIC ECZEMA OF THE LEGS.

R Unguenti Zinci,
Unguenti Hydrargyri,
Unguenti Plumbi Acetatis, partes æquales.
Misce et fiat unguentum.

POWDER FOR SPASMODIC ASTHMA.

R Lobeliæ pulveris,
Stramonii pulveris,
Theæ Nigræ pulveris,
Potassii Nitratis, æa partes æquales.
Misce bene et fiat pulvis.

A little to be burned and the vapour inhaled.

FOR IMPETIGO CONTAGIOSUM.

R

Unguenti Hydrargyri Ammoniatī ʒij.

Unguenti Zinci ad ʒj.

Misce et fiat unguentum.

To be applied after the affected parts have been soaked in carbolic oil.

APPLICATION FOR FOUL ULCERS.

R Amyli ʒj.

Glycerini ʒij.

Liquoris Iodi ʒj.

Aquæ ʒij.

Misce et fiat applicatio.

To be applied twice daily.

FOR ECZEMA SEBORRHŒICUM.

R Acidi Salicylici,

Resorcin,

Sulphuris Præcipitati, āā ʒjss.

Adipis Benzoati, ʒj.

Misce et fiat unguentum.

To be efficiently applied to the affected parts.

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Department of Public Health.

ON THE INCREASE OF DIPHTHERIA MORTALITY IN LONDON.

BY JOHN F. J. SYKES, D.SC., M.D.,¹

Medical Officer of Health for St. Pancras.

I BEG to present herewith a report upon the probable causes of the increase of diphtheria.

Comparing scarlet fever, diphtheria, and enteric fever in the three previous decennia, the following are the results as recorded in Tables 18 and 19 of the Registrar-General's last Annual Report.

ANNUAL MORTALITY PER MILLION LIVING.

DECENNIAL PERIODS.	ENGLAND AND WALES.			LONDON.		
	Scarlet Fever.	Diphtheria.	Enteric Fever.	Scarlet Fever.	Diphtheria.	Enteric Fever.
1861-70	971	187	(886) ²	1133	179	(904) ²
1871-80	719	121	826	600	122	244
1881-90	338	163	198	335	259	189

It will be observed that the scarlet fever mortality per million for London fell from 1133 in the first to 600 in the second decennium; and in the 47th Report (1884) of the Registrar-General it is suggested that the greater fall in London than in England and Wales may have been due to the provision of

¹ Report presented to the Health Department of the Vestry of St. Pancras.

² Includes also typhus and simple continued fever.

greater isolation and hospital accommodation. This would appear to be corroborated by the fact that in the next decennium, more isolation hospitals having been provided in the larger towns, the fall in the mortality in England and Wales was greater even than in London, and the two ratios per million were almost equal in 1881-90.

The mortality from enteric fever fell in London from 244 per million in the decennium 1871-80 to 189 per million in the last decennium, and in England from 326 to 198 per million, due to improved sanitation. Comparing London with England, exactly the same order of fall in mortality is observed as in the case of scarlet fever. In the decennium 1861-70 enteric fever was embraced under the head of fevers, which included also typhus and simple fever; at this period the combined mortality from the three diseases in London was higher than in all England and Wales, the former being 904, and the latter 886. The effect of sanitation first became apparent in London when the mortality from enteric fever, taken alone, in the next decade fell below that in England and Wales; in the last decade, when sanitary measures outside London had also improved, the ratios for England and for London fell so as to approach each other.

Turning to diphtheria, on the other hand, in both England and London the mortality was less in the second decennium than in the first, but in the last decennium it was greater than in the second, and in London had increased to a higher ratio even than in the first. Comparing London to England, in the first decennium the ratio of mortality was about 5 per cent. lower than in England, in the second was about equal, and in the third it was about 60 per cent. higher.

Dr. Longstaff, in his paper on "The Geographical Distribution of Diphtheria in England and Wales," in the extra supplement to the Report of the Medical Officer of the Local Government Board for 1887, found the death-rates from diphtheria per million of population, according to density, to be as follows:—

Districts according to density of population.				1855-60.	1861-70.	1871-80.
Dense Districts	...	...	...	123	163	114
Medium	„	...	...	182	164	125
Sparse	„	...	...	248	223	132

The noticeable feature in these figures is that a progressive diminution in the mortality from diphtheria appears to have been taking place in rural districts, being most marked in the most sparsely inhabited.

Dr. Thorne Thorne, Medical Officer of the Local Government Board, in his work upon *Diphtheria* published in 1891,¹ showed in tabular form (Table No. IX.) that since 1871, whereas the annual death-rates from all causes, from the seven principal zymotic diseases, and from enteric fever, have been steadily falling in England and Wales, in the large towns, and in London, the annual death-rates from diphtheria have been rising slightly in England and Wales, more markedly in the large towns, and most markedly in London.

ANNUAL MORTALITY FROM DIPHTHERIA PER 1,000 LIVING.

Year.	England and Wales.	Twenty-eight large Towns.	London.
1871	0·11	—	0·10
1872	0·09	—	0·08
1873	0·11	—	0·09
1874	0·15	—	0·12
1875	0·14	—	0·17
1876	0·13	—	0·11
1877	0·11	—	0·08
1878	0·14	—	0·15
1879	0·12	—	0·15
1880	0·11	—	0·14
1881	0·12	—	0·17
1882	0·15	0·16	0·22
1883	0·16	0·16	0·24
1884	0·18	0·17	0·24
1885	0·16	0·17	0·22
1886	0·15	0·16	0·20
1887	0·16	0·18	0·23
1888	0·17	0·21	0·30
1889	0·18	0·26	0·39
1890	0·18	0·24	0·33

In searching into the cause of this apparently persistent and progressive increase of the mortality from diphtheria in London, the first point that strikes one is that, unlike that of scarlet fever, the mortality of diphtheria is not subject to great epidemic fluctuations, but, like that of typhoid fever, it is comparatively

¹ *Diphtheria: its Natural History and Prevention.* Milroy Lectures. Macmillan and Co., London.

steady. This is shown by means of a diagram, which also shows that, whereas the mortality rate of diphtheria is steadily rising, that of typhoid is equally steadily falling, *pari passu* with improving sanitation, and that that of scarlet fever is also falling, *pari passu* with increased hospital isolation. No hospital accommodation was provided for diphtheria until the end of 1889.

It is important to note these points, because diphtheria resembles scarlet fever in its power of spreading directly from person to person, and also resembles typhoid fever in that diphtheria, or some form of throat diseases closely allied with it, may arise from certain insanitary conditions. Comparing the last two diseases, whereas typhoid only occasionally spreads directly from one person to another, diphtheria always spreads with great facility from person to person; and whereas typhoid varies in direct proportion to insanitary conditions, the relationship of diphtheria to insanitary conditions is overwhelmed by the influence of personal infection. So that, whereas the improvement of sanitation markedly decreases the mortality of the former, it appears to have no effect upon the latter; and whereas the increase of general density of population in all districts, of special density in towns, and of aggregation in schools, only remotely and indirectly affect typhoid, they closely and directly affect diphtheria.

Dr. Thorne Thorne has called marked attention to the special incidence of diphtheria in children attending schools, and concludes "that, apart from age and susceptibility, 'school influence' so called tends to foster, diffuse, and enhance the potency of diphtheria, and this, in part at least, by the aggregation of children suffering from that 'sore throat' which commonly is prevalent antecedent to, and concurrently with, true diphtheria." The period of life at which there is most susceptibility to acquire diphtheria is from three to twelve years of age, and school attendance increases the risks of personal infection by the aggregation and prolonged association of children together.

The progress of educational legislation traces the progressive increase of elementary education, and of school attendance.

In 1870 the Elementary Education Act was passed for the establishment of School Boards and Elementary Schools.

The Act of 1872 empowered the London School Board to borrow money and to erect further offices.

By the Elementary Education Act of 1873 any out-relief given to the parent or guardian of a child aged from five to thirteen years was made conditional on the child receiving elementary education.

In the Act of 1876 a child was defined as a person between the age of five and fourteen years. A certificate of proficiency or of due attendance at school was required for the employment of a child over ten years of age, and further provision was made as to the employment and education of children in factories, 250 attendances being necessary; and for the payment of school fees for poor parents, 350 attendances being necessary. An Order of the Court was made obtainable for enforcing the attendance of a child at school. Day Industrial schools were established. An increase of the Parliamentary grant was made. School Attendance Committees were given power to make bye-laws like School Boards, and to appoint local committees.

The Act of 1880 compelled bye-laws to be made by every School Attendance Committee, under Sec. 74 of the Act of 1870, respecting the attendance of children at school, and prevented children from ten to thirteen years of age being employed previous to reaching the standard fixed by bye-law.

By the Education Code Act 1890, a special grant of £10 annually was made to schools where the population was less than five hundred, and "elementary education" was not to be the condition of a Parliamentary grant to Evening Schools.

By the Elementary Education Act 1891, schools in which the fee for each child from three to fifteen years of age did not exceed ten shillings a year were allowed a free grant of that amount and rendered free.

But the average number of children on the roll of the London School Board annually gives a more definite idea of the increase of elementary education in London, and for the purposes of comparison I have framed the table on page 142.

On examining the table it is to be observed that, whereas during the decennium 1861-70 the number of deaths from diphtheria decreased annually, during that of 1871-80 they increased annually, and in similar proportions, although when the increase of population is taken into account the increase

LONDON.

Year.	Census Population.	Number of Deaths from Diphtheria. Registrar- General's Annual Sum- mary, 1892.	Average number on roll of Board and Non- Board Schools.	Number of Cases of Diphtheria admitted to Hos- pitals of Metro- politan Asylums Board.	Number of Cases of Diphtheria notified.
1861	2,804,000	674			
1862		730			
1863		799			
1864		611			
1865		431			
1866		462			
1867		447			
1868		495			
1869		340			
1870		334			
1871	3,254,260	344	222,518		
1872		267	240,927		
1873		320	319,149		
1874		419	370,794		
1875		581	387,023		
1876		387	405,467		
1877		316	426,953		
1878		566	444,322		
1879		575	468,564		
1880		544	483,493		
1881	3,815,544	657	498,504		
1882		857	519,130		
1883		952	557,562		
1884		951	570,280		
1885		904	592,421		
1886		851	591,565		
1887		953	617,343		
1888		1,311	628,801	(2 months) 89	
1889		1,617	644,068	722	(2 months) 981
1890		1,382	658,932	942	5,870
1891	4,211,743	1,435	661,497	1,312	5,907
1892		1,885	678,309	2,009	7,781
1893		— ¹	700,107	2,848	13,026

is not quite so great. Comparing the number of scholars on the roll of the London School Board, the influence of elementary education appears to have had some effect in producing this result. But, on scanning the decennium 1881-90, it is to be observed that there are two suddenly pronounced and permanent increases in the number of deaths, the first extending from near the beginning of the decennium to 1887, and the second from that year to the end and continuing into the next decennium.

On further examining this table it is apparent that these

¹ According to the Annual Summary for 1893, the revised deaths from diphtheria in 1892 were 1,969, and the unrevised deaths for 1893 were no less than 3,265.—[EDITORS *Practitioner*].

distinct and permanent increases in the number of deaths from diphtheria are out of all proportion to the increase of population and of scholars, and the last is more or less coincident with the commencement of notification of diphtheria, and of the admission of the disease to the hospitals of the Metropolitan Asylums Board. The mortality from diphtheria in the hospitals of the Metropolitan Asylums Board was falling during this period, as shown by the following table:—

Year.	Admissions.	Deaths.	Mortality per cent.
1888 (2 months)	89	46	59·35
1889	722	275	40·74
1890	942	316	33·55
1891	1312	397	30·63
1892	2009	583	29·35

The hospital cases were therefore not the cause of the increase in the number of deaths from diphtheria in London.

These peculiar increases led me to examine more closely the statistical figures in relation to diphtheria, and to compare those relating to other diseases attacking the palate, uvula, tonsils, pharynx, larynx, and trachea. It was not possible to go further back than the beginning of the last decennium, as previous to 1881 the Registrar-General gave no details of deaths occurring from these diseases in London. For the sake of brevity I have termed them throat diseases, and in the following table the deaths from these diseases are set out:—

LONDON.—DEATHS FROM THROAT DISEASES.

Extracted from tables of Causes of Deaths at different periods of life, Male and Female, in Registrar-General's Annual Reports.)

Year.	Total Throat Diseases.	Diphtheria.	Total Throat Diseases other than Diphtheria.	Thrush.	Croup.	Laryngitis.	Other diseases of Larynx and Trachea.	Sore Throat, Quinsy ¹	Estimated population.
1881	1,887	657	1,230	164	663	260	52	91	3,824,064
1882	2,318	853	1,465	110	868	312	55	120	3,862,876
1883	2,352	952	1,430	134	824	283	46	143	3,901,164
1884	2,295	951	1,344	121	780	307	49	137	3,929,832
1885	2,100	904	1,196	104	690	304	26	112	3,978,883
1886	1,873	851	1,022	118	550	248	23	98	4,018,321
1887	2,081	958	1,128	80	626	259	46	117	4,058,150
1888	2,279	1,311	968	62	501	251	41	113	4,098,374
1889	2,510	1,616	894	84	458	218	41	93	4,138,996
1890	2,378	1,882	991	92	505	234	36	124	4,180,021
1891	2,188	1,433	750	70	339	210	33	98	4,221,452

¹ This includes tonsillitis, pharyngitis, and oesophagitis.

[The material for the two years 1892 and 1893 can now be in part added to Dr. Sykes's table :—

Year.	Total Throat Diseases.	Diphtheria.	Total Throat Diseases other than Diphtheria.	Thrush.	Croup.	Laryngitis.	Other diseases of Larynx and Trachea.	Sore Throat, Quinsy.	Estimated population.
1892	—	1,969	—	74	277	—	—	97	4,263,294
1893	—	3,265	—	43	217	—	—	130	4,306,411

EDITORS *Practitioner*.]

From this table it appears that there has been a very marked fall in the number of deaths from thrush and croup, a distinct but less marked fall in those from laryngitis and other diseases of larynx and trachea, and an irregular and slight decrease under the head of sore throat, only observable on comparing the quinquennium 1881-5 with that of 1886-90. All these diseases, taken together, show a progressive and very distinct fall in the number of deaths attributed to them. Diphtheria, on the other hand, shows a progressive and distinct rise; in fact, when compared side by side, the numbers of the two classes proceed in inverse ratio, and when the two classes are totalled together any increase disappears. Thinking that the influence of age incidence might have affected the result, I extracted the deaths from the several diseases and classified them in two categories, under fifteen years, and fifteen years and over, the incidence of diphtheria being greatest under fifteen years. The result is shown in the following table :—

LONDON.—DEATHS FROM THROAT DISEASES—UNDER 15 YEARS, AND 15 YEARS AND OVER.

(Extracted from tables of Causes of Deaths at different periods of life, Male and Female, in Registrar-General's Annual Reports.)

Year.	Total Throat Diseases.	Diphtheria.	Total Throat Diseases other than Diphtheria.	Thrush.	Croup.	Laryngitis.	Other Diseases of Larynx and Trachea.	Sore Throat, Quinsy.
1881	1741 + 146	607 + 54	1134 + 96	164 + —	663 + —	209 + 51	31 + 21	67 + 24
1882	2174 + 144	808 + 45	1366 + 99	110 + —	167 + 1	254 + 58	45 + 10	90 + 30
1883	2210 + 172	892 + 60	1318 + 112	132 + 2	824 + —	229 + 54	29 + 17	104 + 39
1884	2124 + 171	883 + 68	1241 + 103	119 + 2	780 + —	263 + 44	30 + 19	99 + 38
1885	1972 + 128	854 + 50	1118 + 78	104 + —	690 + —	218 + 46	21 + 5	85 + 27
1886	1732 + 141	798 + 53	934 + 88	118 + —	530 + —	202 + 46	15 + 13	69 + 29
1887	1926 + 155	901 + 52	1025 + 103	80 + —	625 + 1	219 + 40	28 + 18	73 + 44
1888	2141 + 138	1242 + 69	899 + 69	62 + —	501 + —	215 + 38	33 + 8	88 + 25
1889	2370 + 140	1546 + 70	1224 + 70	84 + —	458 + —	188 + 30	24 + 17	70 + 23
1890	2186 + 187	1320 + 62	866 + 125	92 + —	505 + —	160 + 54	18 + 16	71 + 53
1891	2010 + 178	1369 + 64	641 + 109	70 + —	339 + —	153 + 57	20 + 13	59 + 39

This table shows how little the numbers of deaths at fifteen years of age and upwards affect the results. The numbers are few, but comparing the quinquennium 1881-85 with that of 1886-90, although there is an increase of thirty-three deaths from diphtheria, and a decrease of the same number from other throat diseases, equal only to 3·3 a year, the total numbers remain the same in the two quinquennia, showing a stationary number of deaths from all throat diseases at and over fifteen years of age, and, taking increase of population into account, an actual decrease of mortality. If we turn to the numbers under this age, we find the figures of the previous table, which are large, are corroborated by the enormous increase in the number of deaths attributed to diphtheria, and the decrease in the number from other throat diseases, and comparing the total number of deaths from both classes under fifteen years of age in the first quinquennium with the second there appears only an increase of 134, equal to 13·4 per annum, or, taking population into account, also a decrease in the mortality.

The deaths, therefore, of fifteen years and over having so little effect, the total numbers have been taken in calculating the table of death-rates per million.

LONDON.—DEATH-RATES PER MILLION LIVING PER ANNUM.¹

Year.	Diphtheria.	Diseases of Throat other than Diph- theria.	Total Diseases of Throat.	Quinquennial Mean.
1881	172	321	493	562
1882	222	379	600	
1883	244	366	610	
1884	241	341	582	
1885	227	300	527	
1886	212	254	466	542
1887	235	278	513	
1888	319	236	555	
1889	391	216	607	
1890	331	237	568	
1891	340	177	518	—

In this table the progressive increase of mortality attributed to diphtheria and the equally progressive decrease of mortality

¹ The rate for 1892 was 462, and that for 1893 reached 760. And taking diphtheria and croup together we have the following rates per million: 1881-85 = 416; 1886-90 = 426; 1891-93 = 580.—[Ed. *Pract.*]

due to other throat diseases in London are distinctly shown, the inverse ratio in the progression being so well marked and corresponding so closely that the total of the two classes of diseases shows no progressive variation, until the means of the two quinquennia are compared, and then it appears that the mortality from all throat diseases taken together is decreasing, a result for which the increase in diphtheria mortality had scarcely prepared us. [The change that has taken place in this respect is graphically represented in the form of a diagram which is not here reproduced.]

The conclusions that I have therefore come to are :—

(1) That a slight diminution is taking place in the death-rate from throat diseases taken as a whole ; and

(2) That the great rise in the mortality from diphtheria corresponds with a great fall in that from other throat diseases.

As to the former, it may be due to diminished prevalence, or to greater vigilance, or to better treatment. Parents, guardians, teachers, nurses, medical men, and the public generally are more alive to the danger of throat diseases than formerly. As to the latter, many causes are possibly at work, and a few words may be devoted to each.

1. *The effect of the Infectious Disease Notification Act.*—This Act came into force in the metropolis at the end of October 1889, and has tended to more care and attention being bestowed, not only upon diphtheria, but upon all infectious diseases. The great rises in the diphtheria mortality curve of the last decennium took place from 1881 to 1883 and from 1887 to 1889, antecedent to the introduction of compulsory notification, and the persistent and gradually progressive fall in the mortality curve of other throat diseases commenced in 1883, seven years previous to the introduction of compulsory notification into the metropolis. Furthermore, during the past decennium there has not been any rise in the mortality from other notifiable diseases comparable to that of diphtheria. It will be observed also that my conclusions are not based upon notifications but upon *deaths*, that the fatal—not the benign—forms of disease are in question.

2. *The effect of the Reception of Cases into the Hospitals of the Metropolitan Asylums Board.*—It will be unnecessary to

discuss here the effect of the Board's hospitals upon diphtheria raised in the interesting paper of Mr. R. D. R. Sweeting upon post-scarlatinal diphtheria in the Transactions of the Epidemiological Society 1892-93, nor the etiology of the various forms of diphtheritic throat affections treated so fully and with such exactitude by Dr. Klein in the supplementary reports of the Local Government Board, seeing that it has already been shown by figures from the Asylums Board's own reports that the fatality of diphtheria cases admitted diminished in each succeeding year. It may be that the admission of cases to hospital may have had some slight indirect effect in directing more care and attention to sore throats, but the upward tendency of diphtheria commenced prior to this date, and therefore this effect would be only part of the generally increasing attention already being paid to the disease.

3. *The effect of Sanitary Legislation generally.*—This must also be taken into account, for the Public Health Act 1875 came into force during the very decennium when compulsory education came into force, and the effect of the Act was to stimulate the recognition and prevention of infectious diseases in England, especially in large towns. Compare the dates in the earlier tables of this report. The stimulus, doubtless, extended to the metropolis, and, in conjunction with additional sanitary legislation, directed closer attention to infectious diseases in London also.

4. *The effect of Elementary Schools.*—Dr. Thorne Thorne has so fully and so carefully entered into this subject that his conclusion that increased school attendance has had a material influence in increasing the spread of diphtheria is irresistible.

5. *Alteration in Classification.*—Any changes made in classification by the Registrar-General are usually commenced at the beginning of a decennium, and therefore would not affect the detailed London figures of throat diseases in this report. The Superintendent of Statistics, Dr. Tatham, has kindly informed me that "membranous croup" was not classed with diphtheria until the commencement of the present year (1894), although "diphtheritic croup" has been classed with diphtheria for a long period, so that classification can have had little or no effect upon the returns of mortality.

6. *Variation in Nomenclature.*—Improved medical diagnosis, due to improved medical education and increased knowledge of diseases of the throat, enables these diseases to be more readily differentiated than formerly. Now, most forms of infectious sore throat are regarded as diphtheria, and the fatality of such diseases is recognised, whereas formerly the term was restricted to typical cases. The danger of the earlier practice has been pointed out in the many instances brought to light in which apparently simple sore throats in schools have culminated in serious and fatal epidemics.

7. *Change of Type.*—In the last place, the question may be seriously asked whether the variation in nomenclature may not be due to a change of type in disease of the throat. Dr. Thorne Thorne says "that there is reason to believe that attacks of so-called sore throat exhibit under certain favouring conditions a progressive development of the property of infectiveness, culminating in a definite specific type which is indistinguishable from true diphtheria." A change of type is probably taking place as the result of increased density of population, especially in towns, more particularly of the aggregation in schools, and of the effects of personal infection consequent on these. There is also a strong probability, and it only remains to be definitely proved, that a sore throat caused by insanitary or other conditions may possess or acquire infective properties, and in passing from person to person may also acquire such virulence as to cause death from infectious sore throat of a type which the clinician would certify as diphtheria, whatever the pathologist might declare it to be as the result of bacteriological examination.

ON THE NOTIFICATION OF MEASLES AND WHOOPING-COUGH.

THE question as to the desirability of adding measles and whooping-cough to the list of the infectious diseases to be notified under the Infectious Disease (Notification) Act 1889 has given rise to very divergent opinions. On the one hand, there

is no question that these two diseases are amongst the most fatal in England and Wales. The mean annual fatal attacks for the ten years 1882-91 for measles and for whooping-cough involve an amount of death that would be looked upon as appalling were it produced by two diseases which mainly killed adults. On the other hand, it has been felt that owing to the facts that both diseases are so often infectious before they are recognised, and that those affected are too numerous and too young to be isolated in hospital and thus to be separated from their parents, no particular good would be done by going to the expense of acquiring information as to the precise extent to which the two diseases were prevailing. And some authorities who have tried the experiment have found that it was a costly and a useless one.

This experience has, however, in many cases been based on the results of a method of procedure which ought not to have been adopted. Measles, for example, has become epidemic, and it has been forthwith added to the list of notifiable diseases. During the outbreak in question but little could be done to stay its spread, for the mischief was already done.

Sanitary authorities have seen no result beyond a long bill by way of notification fees. They then commonly desire to withdraw measles from their list, and they say it has been shown to be both costly and useless. In view of this attitude, the Local Government Board now generally point out to authorities that no proper experience can be acquired as to the value of the notification of either measles or whooping-cough, unless the system is maintained for several years—generally some five years; the idea being that at least two outbreaks should occur during the period in which the notification is in force, and that the period should be sufficiently long to enable the authority to see what can be done at the onset of an apparent epidemic rather than at the height of one.

Opinions still vary as to the results, and the difference of opinion is probably in large measure due to the extent to which the information acquired is utilised to prevent children who are either themselves infected, or who come from infected houses, from attending the elementary schools and mingling with their fellow-scholars.

In the present state of knowledge on the subject, the following report and papers submitted to the Health Committee of the Manchester Town Council by Dr. James Niven, their medical officer of health, will be read with interest by those who have to do with promoting either the health or the education of the rising generation.

The Medical Officer of Health reports that he has given a careful consideration to several communications which have been received from important Associations in reference to the notification of disease.

In a memorial from the Manchester Medico-Ethical Association to the Lord Mayor of the City of Manchester, dated October 18th, 1893, attention is directed to the much larger number of deaths from measles in 1892 than from scarlet fever in the same year, and to the prevailing idea among the poorer classes that measles is a trifling disease. It is believed that compulsory notification alone would bring home to the minds of the people the fact that measles is a grave disease. They, therefore, urge that measles should be included in the list of compulsorily notifiable diseases.

A memorial of the Committee of the Manchester and Salford Sanitary Association, addressed to the Sanitary Committee of the Manchester City Council, and bearing date November 13th, 1893, gives the deaths in the city from scarlet fever, measles, and whooping cough for the years 1891 and 1892, and, connecting the large number of deaths from measles and whooping-cough with the popular idea that these are slight diseases, expresses the opinion that the public mind will not be properly impressed with the seriousness of measles and whooping-cough until they are scheduled for compulsory notification.

The Committee of the Association do not anticipate that notification can stamp out an outbreak, but they submit that, were the cases notified, much might be done to prevent the spread of contagion, and to insure such treatment of cases as would largely diminish the mortality from these complaints; and further, that notification would tend to minimise the danger which exists of non-notification of cases of scarlet fever by those who mistake that complaint for measles.

Recognising the difficulty of expense, they suggest that the onus of notification might tentatively be limited to the parents or friends of infected persons, and that notification of measles only might at first be tried.

A report by Dr. Tatham on the subject of the compulsory notification of measles, dated January 29th, 1894, states that as the responsibility entailed by any conclusion arrived at would fall on the future Medical Officer of Health, he should be consulted before any decided step was taken.

A communication to the Lord Mayor of Manchester from the Committee of the Chorlton-upon-Medlock Dispensary, dated February 19th, 1894, recommends the compulsory notification of measles and whooping-cough, on the ground that these diseases readily spread through the out-patients' department of that and other institutions. They do not think it necessary to remove cases of these diseases to hospital.

A communication from the Guardians of the Poor of Chorlton Union, dated March 19th, 1894, encloses a resolution of the Guardians, that, in the opinion of the Board, measles and whooping-cough should be included in the list of infectious diseases for notification under the Act of 1889, and that copies of the resolution should be sent to the Medical Officer of Health for the City of Manchester and to the Local Government Board.

It will be seen that the chief contention in favour of the compulsory notification of measles and whooping-cough is that the poorer classes of the people would be educated to recognise the gravity of these diseases, and that in this way greater care would come to be exercised in treating children attacked by them. For practical purposes, in dealing with the advisability of extending compulsory notification, it will be convenient to consider measles only. The difficulties are much the same for the two diseases.

The immediate advantages which might be anticipated from the notification of measles are: 1. That instructions could at once be given and insisted on for the isolation of individual cases, and for the exclusion from school and other institutions and assemblies of children likely to develop the disease. 2. Instructions could be given for the isolation and treatment

of cases such as would materially assist in diminishing the fatality of the disease. It would be necessary for these purposes that notification should be tolerably complete, and this could only be expected if a fee were paid for notification. But, even when notification is as complete as can reasonably be looked for, the anticipated advantages may not be realised. Thus, in Edinburgh and Birkenhead, where measles has been notifiable since 1882, neither the rapidity of diffusion of the disease nor the fatality has been reduced under notification.

Supposing measles notified, and 2s. 6d. paid for each case, taking the average case mortality of 3 per cent. given by Dr. Henry Littlejohn for ten years of notification in Edinburgh as applicable to Manchester, the number of cases of measles reported in Manchester would have been—in 1891, 7,333; in 1892, 12,300; in 1893, 9,767; and the expense incurred for notification alone, £916 12s. 6d., £1,537 10s., and £1,220 17s. 6d. respectively.

The expense of notification would not be quite so great as this, owing to the smaller amount which would be paid for institutions, but we may assume that it would be over £1,000 per annum.

This is, however, only part of the actual cost. Presuming an effort were made to cope with an outbreak of measles by isolation at home, this would entail a large amount of work thrown suddenly on the sanitary staff. Either the rest of their work would get neglected, or the staff would have to be increased.

The experiences of Edinburgh and Birkenhead do not seem to hold out much hope from notification of measles apart from isolation in hospital. It is probable that the isolation of cases of measles in hospital would entail a certain reduction in the fatality of the disease, but it would do so at a very great expense, and it is questionable whether the return would justify the outlay.

Besides the experience of Edinburgh and Birkenhead, I have thought it desirable to obtain also that of a number of other districts in which measles has been, or is now, notified. Of the medical officers of health who have answered my circular, the majority are either doubtful of the value of notification, or regard it as of little value in preventing the spread of the disease.

The reasons which make it in my opinion undesirable to adopt the compulsory notification of measles are these:—

1. The death-rate per 1,000 living is highest in the second year of life, and unquestionably a very large proportion of the attacks occur at that early period. These are in a large number of instances treated at home, without medical attendance, and, owing to the difficulty of diagnosis and high infectiveness of the disease in the early stage before the rash appears, the disease is spread before it is possible to recognise it.

2. Owing to its intense infectiveness, it spreads in the same manner among school children before the first cases have been recognised. Such notification returns as I have been able to obtain show that, almost without exception, the number of cases suddenly jumps up from one month to the next, illustrating at once the high infectiveness of the disease and the small influence which notification has hitherto exerted over its diffusion.

3. Generally speaking, the mortality records of notification districts are not encouraging as regards the connexion of notification with reduction of the death-rate from measles.

4. Notification of measles is very expensive, and the expense incurred would be justified only by a considerable degree of control over the disease. Such a degree of control it is evidently difficult to obtain.

5. Without isolation in hospital there is little prospect of being able to check the spread of measles, and I am not prepared to recommend that the disease should be isolated in hospital. Nevertheless, it is with great regret that I feel bound, at present, to express the opinion that it is undesirable to have these diseases compulsorily notified, and I consider that, in spite of the difficulties, an effort should be made in some measure to control their incidence on schools, and still further to diffuse a knowledge of the means by which they can be made less fatal.

Amongst certain tables appended by Dr. Niven is one showing the death-rate in Manchester in 1891, 1892, and 1893 from scarlet fever, measles, and whooping-cough at different ages. From this he points out that measles and whooping-cough

attack severely the first two years of life, and he adds: "If it were proposed to isolate these cases in hospital, their ages would be a serious obstacle. They will also come less under the notice of medical men than older children attacked by zymotic disease."

MANCHESTER.

Death-rates from Scarlet Fever per 1,000 of Population.

	All Ages.	Under 1 Year.	1-	2-	3-	4-	Under 5 Years.	5-	10-	15-	20-	25-	35-45
1891	0.22	0.21	1.12	1.91	1.93	1.07	1.22	0.52	0.09	...	...	...	0.02
1892	0.27	0.21	1.43	1.57	2.39	1.96	1.43	0.60	0.11	0.02	0.02	...	0.02
1893	0.27	0.42	1.10	2.11	1.89	1.78	1.43	0.56	0.19	...	0.06	...	...
Annual Average, 1891-93	0.25	0.28	1.22	1.86	2.07	1.60	1.38	0.56	0.13	0.01	0.03	...	0.01

Death-rates from Whooping-cough per 1,000 of Population.

	All Ages.	Under 1 Year.	1-	2-	3-	4-	Under 5 Years.	5-	10-	15-	20-	25-	35-45
1891	1.02	13.75	13.48	5.72	3.45	1.73	7.81	0.33	0.02	...	...	...	...
1892	0.72	10.19	7.95	4.01	2.79	1.55	5.44	0.31	...	...	...	...	...
1893	0.46	6.27	5.44	2.89	1.89	0.65	3.51	0.19	...	...	...	...	...
Annual Average, 1891-3 ...	0.73	10.07	8.96	4.21	2.71	1.31	5.59	0.28	0.01	...	...	...	...

1893.—65.75, Whooping Cough, 1 = 0.01.

Death-rates from Measles per 1,000 of Population.

	All Ages.	Under 1 Year.	1-	2-	3-	4-	Under 5 Years.	5-	10-	15-	20-25
1891	0.43	2.98	7.86	3.26	1.29	0.91	3.26	0.19	...	...	0.02
1892	0.72	5.62	12.16	4.49	3.66	1.22	5.46	0.31	...	...	...
1893	0.57	5.08	9.77	3.90	1.58	1.13	4.33	0.20	...	...	...
Annual Average, 1891-3	0.57	4.56	9.93	3.88	2.18	1.09	4.35	0.23	...	...	...

The following opinions have been expressed by the medical officers of health of certain large boroughs and other districts as to the value of notifying measles, and as to whether such notification has served to protect public institutions against the infection :—

Edinburgh.—Opinion of medical officer of health not obtained. Dr. Henry Littlejohn, although favourable to the continued notification of measles, does not consider it useful as a means of “checking the spread of the disease.”

Blackpool.—I may state at once that in my opinion notification of measles is valuable, and is worth the money that is paid therefor ; but must confess that it is, after whooping-cough, the most difficult infectious disease that we, as health officers, have to deal with, and that in small towns and country districts notification will have more chance of doing good than in large towns.

Coventry.—Value of notification doubtful. The power of infection arises *before the onset of symptoms*, hence much mischief is done before the earliest notification is possible. Finds precautionary measures powerless to check the dissemination of the disease so long as schools remain open. Closure, however, cannot be resorted to until the disease has become epidemic or sufficiently so to justify the step : hence all efforts to stamp out the malady in its early stage, and thus prevent the development of an epidemic, have failed.

Kidderminster.—We found the spread of the disease greatly retarded, the children better looked after, and, as the consequence, less deaths and far less wounded. After the first cases you can act promptly and isolate. The disease passed from school to school much slower than it did previous to notification.

Neath.—My impression is that no great value is derived from the notification of measles—at any rate not the mild type at present in Neath ; and that public institutions have not been protected to any marked degree.

Reading.—I do not think much good is derived from the notification of measles. The mortality from it has been greater since it has been notifiable. But I think the more general school attendance has increased the spread of measles, and I think this increase would probably have been greater but for

notification, because I think the control over school attendance has a little influence in checking it, and I think in a few instances early closure of infants' departments has exercised some check on the spread of its infection.

Sleaford.—Absolutely without value. Parents do not fear measles, but rather wish their children to have the disease and "get it over."

Todmorden.—I failed to see what benefit was derived from the inclusion of these diseases as notifiable, as few householders notified them, and they did not come under the observation of medical men until they became very prevalent, or assumed an aggravated form—when notification was too late to enable the sanitary officers either to secure the isolation of the sick, or take such precautions as could in any way prevent the spreading of the diseases, which ran their course until such time as they had caught all such victims as were liable to infection.

Withington.—I consider that the notification of measles is of considerable value in preventing its spread. It enables me to cope with an epidemic by closing the schools of the neighbourhood in which the fever prevails at a much earlier period than would otherwise be possible in many instances. I believe the schools to act as the prime means of the spread of measles.

Bolton.—The period during which notification of measles was compulsory in Bolton was too short to form an opinion.

Swansea.—Not impressed favourably.

The following memoranda will serve to illustrate the objects which Dr. Niven hopes to attain in connexion with measles and whooping-cough:—

PROPOSALS IN REGARD TO MEASLES AND WHOOPING-COUGH.

The Medical Officer of Health proposes that a sufficient number of the appended handbills be printed from time to time and used in the following manner.

The Clerk to the School Board has kindly expressed his willingness to co-operate with the Health Department, and would distribute a large number to the School Board Officers.

On the occurrence of Measles in any district they would take

these with them, and hand a bill to any parents whose children were attacked with measles or whooping-cough, when such illness came under their notice. They would also impress on them the necessity of carrying out the precautions mentioned in the handbill. At the same time they would notify to the teachers concerned the occurrence of measles or whooping-cough amongst their pupils, and supply them with copies of the handbill. But I propose also that a circular be addressed to the Head Teacher in all schools of which we can obtain knowledge, with copies of the handbill, requesting them to see that special vigilance is exercised on the occurrence of these diseases in their schools, and in particular to notify to the Health Office when they have attained any dimensions in the school, so that further steps may be taken.

The School Board Officers will also be requested through the Clerk of that Board to communicate with the Health Department, if either of these diseases appears to be spreading in a school, so that an effort may be made to control such extension.

It is further proposed that on the occurrence of a death from either disease, the Sanitary Inspector or Health Visitor shall call at the house where such death has occurred, and instruct the people in regard to the precautions to be adopted, at the same time ascertaining if there are other cases in the neighbourhood. In all such instances the schools of that neighbourhood will receive special cautions, and the handbills will be distributed where they are required.

In this way it is hoped, with the assistance of the school officers in excluding from school children living in infected houses, that something may be done to mitigate the severity of incidence of both measles and whooping-cough.

PRECAUTIONS AGAINST MEASLES.

1. Measles is a very fatal disease. In the years 1891, 1892, and 1893 the total number of deaths from measles in Manchester was more than twice the number from scarlet fever.

2. It is very highly infectious, especially in the early stage for several days before the rash appears. The early signs of

the disease are coughing, sneezing, and redness of the eyes, with some degree of illness.

3. A child at school with such marks of illness should be at once sent home, and the teachers, particularly in the infant department, should be on the outlook for the first signs of illness if measles has made its appearance in the school or neighbourhood. Any illness in a child should then be considered sufficient reason for sending it home till the nature of the illness has become plain.

4. Any one attacked by measles should, if possible, be placed in a separate room upstairs, with a good fire burning in the room, and the window open sufficiently to admit fresh air without allowing the room to get cold. The bed should be placed in that portion of the room, not lying between the window and the fire, in which there is least draught. In summer the fire should not be large, but should not be absent. Where a separate room cannot be provided, the same procedure should be carried out.

5. In view of the high mortality from the disease, parents are advised in every instance to seek medical advice.

6. The children at home not attacked should not go to school or other place of meeting for a month after the appearance of the eruption in the first child, and, if subsequent cases occur, not until a month after the appearance of the eruption in the last child attacked.

7. Where a case of measles has occurred in a house, a careful outlook should be kept on the other children, so that, on the first appearance of illness, they may be kept at home and properly treated.

8. When a child at any house is suffering from measles, no neighbour's child, and no neighbour accompanied by a child, must be admitted, nor should the child ill with measles be allowed to play with other children for a month after the appearance of the rash.

9. Before the child attacked returns to school the following measures should be carried out. All articles of clothing worn by the sick child, and the bedding and hangings of the sick-room, should be washed and put out to air for some days. All washable articles of furniture in the room should be washed. The

walls of the room, if papered, should be cleaned down with dough, the dough being at once burned. If not papered, the walls should be lime-washed. In all cases the ceiling should be lime-washed. The floor should be thoroughly scrubbed. The window should be left open for several days, and the window curtains removed so as to admit as much light as possible. The skin of the child who has been ill should be thoroughly cleansed by several washings with soap and warm water.

PRECAUTIONS AGAINST WHOOPING-COUGH.

1. Whooping-cough is a very fatal disease. In the years 1891, 1892, and 1893, the deaths from whooping-cough in Manchester were nearly three times the number of those due to scarlet fever.

2. It is highly infectious, and, when fully developed, is characterised by the well-known crowing sound. At the commencement of the disease there may be nothing to indicate that it is coming on, except some degree of feverish cold, taken along with the fact that it has been preceded by whooping-cough in other children. Sometimes frequency of cough announces its approach.

3. A child at school in whom there is reason to believe that whooping-cough is showing itself, or who has the disease well marked, should be at once sent home, and the teachers should be on the outlook for fresh cases. Any illness in the infant department, following on the occurrence of whooping-cough, should be viewed with suspicion, and the child sent home.

4. In looking for the occurrence of whooping-cough among children under their charge, teachers are particularly requested to observe that these diseases may be ushered in by no observable symptoms, except perhaps coughing, and that any appearance of illness should be considered sufficient ground for sending a child home for a few days, once the disease has made its appearance in the school.

5. A child attacked by whooping-cough should, if possible, be isolated in a room upstairs, with a fire burning in the room, and the window opened sufficiently to admit fresh air without allowing the room to get cold.

6. The other children in the house must not go to school until the "whoops" have ceased to be perceived.

7. When one child in a household has been attacked with whooping-cough, the others should be watched, and any appearance of illness, especially with coughing, should be regarded as probably whooping-cough, and the child treated in the same manner as the one first attacked.

8. When a child at any house is suffering from whooping-cough, no child, or neighbour accompanied by a child, must be admitted into the house, nor should the child with whooping-cough be allowed to play with other children until the "whoops" have ceased to be observed.

9. The matter coughed or spat up by the sick child must be regarded as infectious, and should be received into pieces of rag, which should be at once burned. Discharges from the nostrils should be treated in the same manner.

10. In all cases of whooping-cough medical advice should be obtained until the child is out of danger.

THE PRACTITIONER.

SEPTEMBER 1894.

Original Communications.

CACTUS GRANDIFLORUS: ITS LITERATURE, COMPOSITION, PHARMACOLOGY, AND THERAPEUTICS.

BY GORDON SHARP, M.B. EDIN.,

Leeds.

Cactus (*Cereus*, Miller) *grandiflorus* (or *grandiflora*), Linn., the night-blooming *Cereus*, belonging to the natural order *Cactaceæ*, is indigenous to tropical America, but is frequently cultivated elsewhere as an ornament. The stem is fleshy and green. The lanceolate petals are of a white colour. The flowers open in the evening, and wither the following morning. They have a fragrant odour, and produce an orange-coloured berry. The juice has an acrid taste, and when applied to the skin produces more or less blistering, and when given internally occasions gastro-intestinal irritation. The branches, with the flowers dried and preserved, are the parts used in medicine.

The Literature.

Since 1868, the drug has been recommended and employed in quite a variety of diseases, although, as Stillé and Maisch state, the plant has not been analysed. Richter¹ employed

¹ *Arzneimittellehre*, ii. 290.

the juice as a vermifuge, and so far back as 1868 Rubini used a tincture in functional palpitation of the heart.¹ Next, in 1879, N. S. Davis² supplied confirmatory evidence. Again in 1883, Byrd³ believed that the drug was useful not only in rheumatism itself, but also in rheumatic and other heart affections. Cullen⁴ used it with success in functional heart disease in which digitalis had no effect, while O'Hara found it efficacious in removing the effects of degenerative lesions of the heart, including dropsy and angina pectoris.⁵ Orlando Jones⁶ recommends the drug as useful in overstrain of the heart, and in delirium tremens, and believes that the final stage of the drug's effect is to stimulate the heart, being thus the opposite of digitalis; and that it can be employed in asthenic conditions, whereas digitalis is useful in sthenic states of the heart. C. L. Gregory⁷ is quoted as finding it useful in diseases of the nervous and circulatory systems, and Watson Williams⁸ speaks of it as being used in dropsy among the natives of the West Indian Islands. He also mentions that it may be used in palpitation due to reflex from dyspepsia, in Graves' disease, in tobacco heart, in the morphine habit, in mild forms of angina pectoris, and in organic heart disease where digitalis and strophanthus fail; and he says it is useful in aortic regurgitation, and that it is good in mitral cases. He mentions a case of dropsy disappearing under *Cactus*, and he further says its effects are not cumulative. The same author quotes Byrd and Harvey, who say it is good in acute, subacute, and chronic rheumatism, and that it shortens diastole, and stimulates the vasomotor nervous centres, while digitalis stimulates the vagus nerve endings and the cardiac muscle, thus prolonging diastole. Aulde⁹ is quoted as believing the drug to be non-cumulative and useful in dilatation of the heart with hypertrophy and murmur; also in anasarca with or without valvular disease, even where digitalis and diuretics have proved useless. On the other hand, Wood and Bache¹⁰ say they got no benefit from its use. After opinions

¹ *Med. Record*, iii. 299.² *Phila. Med. Times*, x. 26.³ *Ibid.*, xii. 811.⁴ *Therapeutic Gaz.*, December 1882.⁵ *Med. News*, xliii. 526.⁶ *Brit. Med. Journ.*, January 1890, p. 70.⁷ *Practitioner*, vol. xlvii. p. 141, 1891.⁸ *Ibid.*, p. 266.⁹ *Ibid.*, p. 223.¹⁰ *U. S. Dispensatory*.

so varied, Stillé and Maisch¹ may well say, "It is evident that more precise information is needed to determine the virtues of *Cactus grandiflorus*."

The Composition.

Stillé and Maisch say that the drug has not been analysed, and on consulting the following works no reference can be found to its active principles—namely, Watts's *Dictionary*, Thorpe's *Chemistry*, *Treasury of Botany*, Bentley's *Botany*, Allen's *Chemistry*, Roscoe and Schorlemmer's *Chemistry*, Gmelin's *Chemistry*, *Year Book of Pharmacy*, and *Proceedings of American Pharmaceutical Association*. On the other hand, Watson Williams says Sultan has isolated the active principle. It would appear that Williams must have fallen into error. Hoseason, of the Owens College, and myself, working on something like half a dozen different specimens of *Cactus grandiflorus*, failed after repeated efforts to find in them either glucoside or alkaloid. The result of our investigations, which were carried on in the laboratories of the Materia Medica Department of the Owens College, will be published in another journal, but I may here state that we found the drug to be composed of a series of resins, one or more of which are soluble in normal saline solution, and any activity which the drug may possess is most likely due to these resins. When the whole resinous mass is treated with caustic soda and then shaken up with ether, the ether removes colouring matter and some resin. The remaining clear alkaline solution on standing throws down a precipitate of colouring matter. This colouring matter is most difficult to get rid of, from the fact of its being soluble in almost all the ordinary extracting fluids. On the precipitate being filtered off, there remains the clear alkaline solution, brownish in colour, from which on being treated with dilute hydrochloric acid there is thrown down the said acid resins. On removal of the resins the remaining filtrate curiously enough very markedly reduces Fehling's solution. Two other very important constituents of the drug are a pectin and a vegetable gum. The amount of sugar or sugars is small. The other component parts are unimportant.

¹ *Dispensatory*, p. 337.

The resins are completely removed by absolute alcohol, almost wholly by absolute ether, less perfectly by chloroform and by rectified spirit. Water extracts a thick mucilaginous solution composed of a trace of resin, vegetable gum, pectin, a trace of glucose, and less important bodies.

The order to which *Cactus* belongs is not important from a medical point of view, none of the members containing either glucosides or alkaloids of known physiological value. One must therefore be astonished at the assertion of the wonderful properties attributed to *Cactus grandiflorus*. The plants of the order are noted for their succulent properties. The prickly pear and the well-known Nopal plant, which succours the cochineal insect, belong to the *Cactaceæ*. As already stated, the *Cactus* plant is succulent, and plants having this property almost never contain any body of important pharmacological value. One might instance the dog-grass, couch-grass, or quitch (*Triticum repens*), which is composed principally of gummy and saccharine substances, but contains nothing beyond this of importance. One might almost say the *Cactus* plant is the botanical analogue of our Iceland moss (*Cetraria islandica*), which grows on barren hillsides, and although not succulent, yet on being placed in water yields a thick mucilage, but nothing else of medicinal value.

The Pharmacology.

As it was impossible to get any definite crystalline glucoside or alkaloid with which to work, some of the pure resinous extract was rubbed up with chemically pure sodium chloride, and to this distilled water was added till a solution corresponding to 0.75 per cent. sodium chloride solution was obtained. This solution was allowed to stand for two hours, being frequently shaken, after which it was filtered. A given quantity was next shaken up with pure ethylic ether, allowed to stand, and the ether drawn off and preserved. The watery fluid was treated a second time with ether, and this also preserved. Both ethereal extracts were next allowed to evaporate off at ordinary temperature. This dry-extract was again treated with ether, filtered, and again evaporated off. The amount of resin dissolved by the normal saline solution, and obtained as just detailed, was found to be 1 in 60,000. When in solution it was found to be

faintly acid, and it is to this acidity in all likelihood that we have to look for any pharmacological effects obtained on the blood-vessels and heart of the frog, now to be detailed.

In order to ensure purity of the resin, and absence of anything of the nature of tannin or other organic body likely to give rise to error, the following plan was employed in extracting the resins. An absolute alcoholic extract of *Cactus grandiflorus* flowers and branches in No. 60 powder was prepared of the strength of one in five. This was found thoroughly to exhaust the drug, experiments having been tried with more alcohol to ascertain if this was so. This extract was evaporated to dryness at ordinary temperature, and the dry extract treated with absolute ethylic ether, filtered, the ether evaporated off, and the extract a second time treated with freshly prepared absolute alcohol, filtered, the alcohol removed by evaporation, and the resultant dry extract used in the manner already mentioned.

The fluid employed to pass through the blood-vessels of the frog was, we may then say, a 1 in 60,000 solution of the acid resin or resins of *Cactus grandiflorus* in normal saline solution (0.75 per cent.)

In all the experiments healthy male frogs were used, and the temperature was maintained at or near 17° C. (64.4° F.) A cannula was inserted and tied in the artery of one side and close to the heart, the corresponding artery being ligatured, the heart cut away, and the veins thus left open. The cannula was attached to a perfusion apparatus, and, in order to fix a standard, normal saline solution (0.75 per cent.) was in all cases passed through; and when a given quantity passed in a given time, and remained constant or nearly so, the resin-containing saline solution was turned on, and this was kept on till the vessels contracted completely or a constant quantity passed. Normal saline was then the second time turned on and maintained till the former amount had been reached, or till evidence was obtained that there was no further use of continuing the experiment.

Experiment I.

Saline	passed constant	5	fl. dr.	every 5 minutes.
Drug	"	4½	"	" " " "
Drug continued	"	2½	"	" " " "
"	"	further: nothing passed through.		

Saline again turned on, but only 1 fl. oz. passed in the hour. After four hours the drug was once more turned on, and the rate of flow was nearly the same as with the saline in the last, namely 1 fl. oz. in the hour. (Experiment given up.)

Experiment II.

The extract was from a different sample of drug.

Saline passed constant 80 minims every 5 minutes.

Drug " " 40 " " " "

The tube of the perfusion apparatus was clipped for three hours, and when again the drug was turned on forty minims as before were passed.

Saline was again passed through, but the quantity of fluid kept at forty minims every five minutes; but finally the amount was reduced to thirty minims, and after some hours the experiment was given up.

The above may be taken as examples of what was obtained. In all the trials contraction of the vessels was obtained; but never that intense contraction seen in digitalis and its group, in which the blood-vessels often refuse to pass anything through them afterwards. Different samples were tried, so that the quality of the drug cannot be objected to.

The next class of experiment was to determine the action of the same strength of solution on the frog's heart by means of Roy's apparatus. For two hours saline solution was run on till the heart had, so to speak, become accustomed to its surroundings, when the drug was allowed to run in. The drug was kept on for many hours, being shut off at intervals of two hours, and the heart kept at rest. The tracings showed no difference from those with the normal saline solution, at all events systole was not altered. The drug thus possesses, I believe, no digitalis-like action. To make sure, however, I made a saturated solution of digitalin (so called: maker unknown) in normal saline, and passed it through the same heart: in a short time, the tonicity of the heart improved, and the heart finally stopped in systole, increased pressure and other means being ineffectual to produce any diastolic response.

While conducting some experiments on my own person with large doses of the semi-solid alcoholic extract of *Cactus grandiflorus*

florus, I noticed that the urine was very high in colour. Now, one knows that the kidneys and the liver have a wonderful effect in breaking up the most complex bodies, and I repeatedly tried the urine with Fehling's solution diluted, but no reduction was obtained, comparisons being made with a solution of glucose so dilute that it had no sweet taste. Further, the urine with strong nitric acid gave no special reaction, nor did it do so with strong sulphuric acid. Some of the urine was treated with dilute sulphuric acid, and then washed with chloroform in a separator, the chloroform withdrawn, evaporated off, and the residue examined: it was light red in colour, had a resinous odour, and did not reduce Fehling's solution, and neither strong nitric acid, strong sulphuric acid, nor Millon's reagent had any effect upon it of characteristic interest.

A portion of this light red extract from the urine was washed three times with pure chloroform (itself depositing no residue), each time being filtered through white paper, and the chloroform was allowed to evaporate off at ordinary temperature. A solution was next made in normal saline solution (0.75 per cent.) and passed through the vessels of a frog as before. A small tin vessel was employed in collecting the fluid as it passed through, and the record was as follows (the tin was employed, as I was unable to devote my whole attention on this particular day):—

Saline. Tin filled in times varying from 51 to 80 minutes.

Drug. „ „ in times varying from 1½ hours to 3 hours. As passed through the kidneys the extract was evidently somewhat oxidised, but was yet *evidently* capable of contracting the blood-vessels, most likely by irritating them slightly (see *Therapeutics*).

The Therapeutics and Clinical Effects.

In studying the therapeutics of the subject, every effort was made to get a reliable drug with which to make trial. At the time I first began to make observations on the subject, now nearly three years ago, the tincture was expensive, costing something like two shillings the fluid ounce. But this was not all: this expensive article was often colourless, and one fluid drachm evaporated off left in the bottom of the watch-glass no

residue, or almost none; in short, it was little more than alcohol, and the smell, taste, and appearance differed nothing from rectified spirit. This occurred in more than one sample obtained from the most respectable provincial drug-houses, and yet I have no doubt some men obtained good results with this preparation. In preparing my tincture I first ascertained if alcohol removed all the resins or possible active principles. I found that absolute alcohol practically exhausted the drug. At first I used a one-in-twenty tincture, but this meant a large amount of alcohol, and, as I found that a one-in-five tincture quite exhausted the drug, I now employ a preparation of that strength. At first the drug was powdered to No. 60 fineness, but as the powdering is most difficult to perform, and as No. 30 is quite fine enough, I now use it of that quality. In order, too, to make sure of having a reliable drug, I have bought large quantities, and have made tinctures from each, and have employed them and compared the results.

Experiments on Myself. 1. Before anything was taken, and following my ordinary employment. During three days:—

Average urine in 24 hours = 33 fl. oz.

„ pulse rate = 70 in the minute.

2. *Cactus grandiflorus*. Continued over five days, 10 fl. dr. of a one-in-twenty tincture (prepared by myself) being taken altogether:—

Average urine in 24 hours = 39 fl. oz.

„ pulse rate „ „ „ = 69 in the minute.

The next set of experiments were conducted on myself thirteen months after those just mentioned.

1. For four days previous to the drug being taken observations were made as to the pulse rate and amount of urine passed:—

Average urine in 24 hours = 42 fl. oz.

„ pulse rate = 70 in the minute.

2. *Cactus grandiflorus*. This time a one-in-five absolute alcoholic tincture was employed, and very large doses were taken, but in order to remove all possible action due to alcohol the tincture was evaporated to one eighth its volume, mixed with simple syrup to make up the original volume, and to suspend the resins should there be any tendency to their separ-

ation. I, however, found that the alcohol kept this amount in solution. Of this alcoholic and syrupy extract 60 minims were taken four times a day after meals, the pulse and urine being noted in the same manner as when nothing was taken. In all 16 fluid drachms were taken, equal to $5\frac{1}{2}$ drachms of the dry drug, extending over a period of four days, the doses being taken four times a day half an hour after meals. Now this dose is much larger than the maximum doses usually prescribed, being in fact twenty-four times greater, and if, as I am told some German authorities say, the drug possesses poisonous properties, I should certainly have experienced some discomfort; but I had no headache, no diarrhoea, no dizziness, no sickness or loss of appetite, in short no evil effects at all. The only difference I knew was that micturition was a little more frequent than ordinary, due, I believe, to the stimulating effect which many resinous bodies possess. This was felt in the urinary tract, and not in the alimentary tract, for it would appear that the resins of *Cactus grandiflorus* are excreted by the kidneys rather than by the bowel; and any diuretic effect the drug may occasionally be found to possess is due to this stimulant action, and not to a digitalis-like action by bringing more blood to the kidneys.

Average urine in 24 hours = 41 fl. oz.

„ pulse rate = 72 in the minute.

As in the other experiments, the average of urine was found by adding up the amount each day, and dividing by the number of days; and the average pulse rate was obtained by adding up the records of each day, and dividing by the number of records taken.

On one occasion I swallowed two fluid drachms of a one-in-one fluid extract without experiencing any discomfort, and a friend told me he had repeatedly swallowed one teaspoonful doses of a one-in-five tincture (absolute alcohol) without effect of any kind.

I have tried a watery infusion on myself of the strength of one-in-forty, made with boiling water. This makes a thick mucilaginous fluid, fluorescent, having no odour, and in taste it resembled as near as need be a gruel made from barley meal (Scotch *bere*).

Of this infusion one fluid ounce was taken four times daily for three days. The urine was not high in colour, and micturition was not more frequent, but the bowels were moved frequently during the last two days of trial. The urine rate and pulse rates with the infusion were—

Average urine in twenty-four hours = 39 fl. oz.

Average pulse rate = 74 in the minute.

Thus, reasoning from observations conducted on *myself*, *Cactus grandiflorus* has no diuretic action, or almost none, and it does not reduce the pulse rate even when given in very large doses. True, it is difficult to bring about the physiological effects with digitalis in the healthy individual, but large doses of digitalis do in time cause sickness and vomiting: these *Cactus grandiflorus* failed to bring about. The resins may have some slight diuretic action, but this is of little account in the treatment of disease. The resins evidently do not purge, and from the fact of their possessing no bitterness, they most likely have no tonic action, such as is possessed by *Aletris farinosa*. This latter plant has most marvellous properties claimed for it, but they can all be summed up in the small vague word "tonic," and this tonic action depends, I am inclined to believe, on the presence of resinous bodies. I merely quote this as an example. Although the alcoholic extract of *Cactus grandiflorus* had no purgative effect, yet this was found with the watery extract. To what was this due, we may ask? To the pectin and vegetable mucilage, which in the stomach and other parts of the alimentary tract are transformed into glucoses or similar bodies. From this fact alone, a drug might obtain a reputation. But in the fresh state *Cactus grandiflorus* is acrid, and from this we may expect it to be purging and diuretic, both effects depending no doubt upon the fresh resin: the acidity is lost in the dried plant. An example of the same thing taking place is to be found in our own *Ecbalium elaterium*, which in the fresh state causes blistering of the cuticle, but when dry does not possess this property, although it is still purgative. The resins of *Cactus grandiflorus* are however, as we have seen, not purgative, and at the most are only feebly diuretic.

Other varieties of *Cactus* have properties of great value

claimed for them, and the one brought most prominently before our notice in Great Britain is *Cactus mexicana*, a variety of *grandiflorus*. The reputed active alkaloidal principle of this drug is largely advertised in the medical papers. I have tried it on patients, and without any effect whatsoever, but in order to give it a fair trial I made experiments on myself, carefully noting the results, if any.

The small sugar-coated pills usually sold are devoid of bitter taste; in fact, they taste of nothing but sugar. I have been unable to demonstrate the presence of either glucoside or alkaloid in them, although I made numerous trials, comparing results with a very dilute solution of cocaine hydrochlorate, and with weak solutions of glucose.

The following is an extract from my notebook :—

“Small sugar-pill of *Cactus mexicana* (reputed). Pulse = 80 before swallowing. Swallowed 40 pills at 6.10 p.m., half an hour after tea and bread and butter. No effect on pulse in two hours; pulse same in four hours; same in fifteen hours; no effect in twenty-six hours; none in thirty-nine hours; none in seventy-two hours; no purgative effect; no diuretic effect.”

The next extract from my notebook runs :—

“27th March, 1894. At 9.30 a.m., half an hour after breakfast, I swallowed in presence of my sister one hundred *Cactus mexicana* (reputed) pills. In one hour my pulse was 106, and in four and a half hours it was normal (70 to 80). The pills had a sweetish taste, and if anything an after bitterness, but very very faint. I experienced no discomfort at all. After taking I saw patients in the house, and in an hour after taking I went out on my visits, walking some miles, and as if I had nothing but breakfast.”

The rise in the pulse rate may have been due to something other than the pills, but of this I am not sure: perhaps some little excitement may have been the cause: this I rather think was the factor. I mention this because in the former observation, when forty pills were taken, no such rise in the pulse rate was present.

The usual dose of these pills is given as one, every one, two, or three hours, so that if the pills possess any poisonous effects I should have experienced them in the doses I took.

The two cases I am about to relate were kept in hospital in bed and on a given diet, records of the temperature, pulse and respiration rates, of the urine passed, and of the state of the bowels, being taken daily; while sphygmographic tracings were taken every other day by means of a Dudgeon's apparatus.

Case I. David W., aged 51, healthy save for a fracture of the ankle; observations conducted for thirteen days; for the first two days no medicine was allowed; the pulse was found to be 60 to 64, the respirations 16; the urine 55 to 62 fl. oz.; the sphygmographic tracings showed a small upstroke and a very slow return to the base-line, as might be expected in a man of 51, and who had worked hard manually all his life. The temperature and bowels were normal. At the end of two days, five minims of a one-in-twenty tincture were prescribed four times a day for two days, after which the dose was doubled, and continued for six days. The conditions of temperature, the bowels, the pulse rate, respiration, and urine were practically unchanged. The sphygmographic tracings were interesting. At first I thought the drug must have some influence upon the pulse apart from altering its rate of beat, for the upstroke was longer, and the downstroke showed distinct oscillations, which were not so clearly defined in the tracing taken when no drug was being given. In this, however, I was mistaken, for in two days the pulse gave tracings similar in every respect to that originally obtained, and the cause of the temporary change must be sought elsewhere. I have greater reason for supposing this, because the seventh tracing taken resembled them in every respect. At this stage the pills of *Cactus mexicana* were given and continued for three days, and altogether forty-six were taken. There is no change, except that one of the tracings (the seventh, already mentioned) is like one of the earlier while *Cactus grandiflorus* was being administered. Now a man of 51 can hardly have a thoroughly sound heart, hence any cardiac tonic should have some effect upon it. To this patient, then, I gave 165 minims of tincture of digitalis, extending over a period of fifty-five hours, and at regular intervals during the daytime, and took tracings. The original character of the tracing was preserved, but with the great difference that the diastolic portion of the pulse-tracing

was lengthened, and the portion of the tracing from the apex to the base-line, instead of being thick and blurred, showed distinct oscillatory waves. The pulse rate remained much the same, but there was some slight increase in the urine (70 instead of 60).

Case II. Sarah E. S., aged 18. Some slight surgical ailment of the ankle, now nearly well. Observations continued over eleven days. Patient healthy.

Before anything was given, the pulse was found to be 76 to 72; respirations 18; urine 30 fl. oz.; bowels and temperature normal. The sphygmographic tracing showed the heart to be in a sound condition, as far as a tracing of the pulse can reveal. After the first day the tincture was prescribed as in the last case. The sphygmograph recorded no change. The urine on two occasions came up to 70 fl. oz., but this proved to be due to a breach of orders on the part of the patient. It occurred on successive days—namely, the fourth and fifth days. The urine came down to 40 fl. oz. or less after this. The other points showed no change, or none of importance. In both cases the diet consisted of one pint of tea and four oz. bread (with butter). for breakfast; potatoes with four oz. of meat for dinner; tea as breakfast; and half-pint of milk for supper. The tincture employed was prepared by myself from carefully selected specimens.

I should add that during the two last days of observation in the case of the second patient nine small pills of *Cactus mexicana* were given daily, but with negative results.

Case III. The next case is one of a man of 50, suffering from disease of all the valves of the heart, but apparently the tricuspid was much involved. The lower limbs showed considerable anasarca. The urine was 50 oz. in the twenty-four hours, and the pulse 70. After four days in hospital in bed, the anasarca disappeared considerably, but the pulse was still 70. He was now placed on 15 minims of a one-in-twenty tincture (prepared by Messrs. Woolley, Manchester) four times daily, but after several days' trial the pulse and urine remained as before, and the tincture was stopped and other treatment substituted. The value of rest in bed in removing dropsy of the lower limbs is shown in this case; but if at once he had been

placed on the drug, one might have ascribed the benefit to that agent.

Case IV. The next case is that of another man of 50, who suffered from mitral incompetence and its consequences, due to backward pressure, namely ascites, anasarca of the lower limbs, bronchitis, and other less important symptoms. Tincture of digitalis was tried in 15-minim doses three times daily, and continued for some days, but without diuretic effect, when *Cactus* tincture (prepared by myself) was tried, and undoubtedly had a diuretic action, or something had, the swelling going down considerably; but it had no permanent benefit on the course of the disease, even although continued over a considerable period of time. May we not say that the diuresis was due simply to the slight stimulant action of the resin? for had it depended on the bringing of more blood to the kidneys, then the pulse (reasoning from our knowledge of the action of digitalis) should be altered.

The following case is interesting because of the relation of the ascites to the action of drugs and attempted tapping, and I give it in full from my notebook.

Case V. Mrs. R., aged 45, widow for seventeen years. Had very profuse metrorrhagia for some weeks; became highly anæmic; no tumour to be felt; no albumin in urine; bowels free, and passes about 40 oz. of urine in the twenty-four hours. Dyspnœic; congested lungs; swollen feet and abdomen; murmurs in all the cardiac areas, evidently anæmic. Gave (after stoppage of metrorrhagia) twenty minims of a one-in-five tincture of *Cactus* (new specimen) every four hours. Some days the urine appears to be increased in amount, other days it is decreased. The pulse, which is over 80, is not reduced in its number of beats in the minute. After a week the *Cactus* is stopped, and twenty minims of tincture of digitalis given four times a day, but without any effect on the swelling, although the frequency of the pulse is reduced. After a week fifteen minims of tincture of strophanthus are given four times a day; but still diuresis is not established, and the ascites and anasarca remain stationary. The patient, being much distressed in mind at the presence of the ascites, asks to be tapped, and although I was opposed to this at first, wishing to rely on arsenic and the

simple diuretics, I had to yield. The trocar and cannula was No. 3, and I plunged it in midway between the umbilicus and the pubes. On withdrawing the trocar only one fluid drachm of fluid came away. At the request of the patient I tried three other times, but only a small amount, counted in all not more than a teaspoonful, came away. I fancy the trocar was too short, and the cannula too small in the bore. Thereafter the patient had a rigor or two and was much upset, but the interesting point is that from this time the fluid began to disappear, and in a week, or rather more, not a trace could be found. She finally made a good recovery.

In an article on sodium nitrite, in the May (1894) number of the *Practitioner*, I have mentioned the case of a lady suffering from Graves' disease, whose symptoms were much aggravated by the exhibition of sodium nitrite. After the stoppage of the latter, I placed her on 10-minim doses, four times a day, of a one-in-six tincture of *Cactus* of known value. The pulse, which had increased in rate after the giving of the salt named, came down to its original rate, namely 140, but no further. The drug was continued for a week. The down-come in the pulse rate one might have ascribed to the *Cactus* had we not known of the former treatment by sodium nitrite. The patient said she felt decidedly better as soon as the medicine was changed, but I am afraid it was simply due to leaving off the nitrite; still I give the case as it happened.

To show the great care which one must exercise in drawing conclusions from the effects supposed to be due to the administration of drugs, I mention the following case. A patient was admitted into hospital, suffering from cardiac dropsy, on whom I meant to try *Cactus*. As I did with all my other patients, I sent him to bed, and for twenty-four hours gave no medicine, the urine, pulse, respiration, and temperature being noted. At the end of twenty-four hours the dropsy had gone down to a great extent, and at the end of forty-eight hours after his going to bed it had to all appearance completely disappeared, and very soon the patient was able to leave hospital. Now had I placed this patient on the drug on the first evening of his admission, *Cactus* might have got the credit. The fact is, there is no branch of therapeutics in which a man

has to be so careful as in that relating to the heart, and there is no disease which benefits so much by rest in bed as cardiac disease.

This finishes my hospital and bedside observations. I gave them the preference, because in all observations on the action of drugs one has to be careful in sifting the evidence of the out-patient department. A patient receives a prescription or medicine, goes away, and you do not know whether he has taken the medicine regularly, or even if he has taken it at all; and you do not know but what he may be at the same time taking some other drug, for a certain proportion of people like to mix their physic. Among my out-patients I prescribed the drug in the form of tincture, prepared by myself, and from different samples. I also employed tinctures prepared by different pharmacists. The strength of tincture I at first employed was a one-in-twenty preparation, but I latterly had it made of the strength of one-in-five, to undo any action that might have been set down to alcohol when I wanted to give large doses of the drug. Of this latter strength of preparation I often prescribed one fluid drachm three or four times a day, and continued it for a week or longer. Occasionally I thought my patients derived benefit, but I believe I could occasionally have done good simply by coloured water. I hardly believe the drug has the merit of being a simple tonic, as resinous preparations often are. It is not bitter, and it does not appear to increase the appetite in either small or large doses. In no case was I able to satisfy myself that it had any effect on the pulse. The advocates of the drug claim for it that it shortens diastole as opposed to digitalis; if it does this, it ought to have some effect on the rate and the rhythm of the pulse. After extended trial I am unable to demonstrate to myself that it has any action in this direction. After a trial of over two years, and with many specimens of the drug, I can only satisfy my own mind on one point of therapeutic value, and that a very small one—namely, that the alcoholic tincture in large doses (thirty minims of a one-in-five preparation) has some very slight diuretic action, but so small as to give it, in my estimation, no place in our list of approved and useful remedies. Of

course men (see Aulde) who combine it with an active drug like *nux vomica* are bound to get results. Amongst out-patients I have tried it in all doses, but when everything is weighed I am afraid I must say without success of any great importance. Amongst the various cases I might mention those of mitral incompetence with bronchitis; mitral incompetence with dropsy of the lower limbs, and some bronchial trouble; irregularity of the pulse, due to what for want of sufficient knowledge is known as functional disease of the heart; palpitation dependent on anæmia in young women; in nervous "irritable" heart, and others. However, I must add that I know a careful practitioner who "fancies" (that is his way of expressing it) he had a case in which the drug acted beneficially. The case was one of so-called functional heart disease, but he had no opportunity of confirming this, and in cases very similar in which he tried the drug no benefit was got.

In summarising the various points of this essay, one finds as follows:—

The literature of *Cactus grandiflorus* is comparatively extensive, but vague, too many properties being ascribed to the drug, and upon too slender evidence; there being no authoritative evidence of a pharmacological or carefully carried out therapeutical kind.

The chemistry is as yet unknown, authorities on this subject not even mentioning the presence of a glucoside or alkaloid; and, so far as we can make out after extensive trials, we have been unable to obtain either of those bodies. The most important agents we find to be a series of resins.

The pharmacology is necessarily indefinite, one having to work with rather insoluble resins. These contract the blood-vessels of a frog, but this is not of the nature of a *digitalis* contraction, but depends, I believe, on simple acidity. On the heart of the frog the resins have little or no effect, comparisons being made with *digitalis* in the same animal. The drug itself would appear to be pharmacologically inert, and there is no proof that it shortens diastole, nor in fact that it has any special action on the heart muscle at all.

The therapeutics of the subject I think are clear enough.

Cactus grandiflorus cannot be included in our list of cardiac drugs. It is not even a simple stomachic tonic, and at most all one can say is that it has some small diuretic action.

My experience of this drug has extended over two years, and during that period I have used many pounds of the substance obtained from various sources. The encouragement and suggestions I have received from Mr. J. Bisset-Smith, surgeon to the Ashton-under-Lyne Infirmary, have been numerous, and to him I acknowledge my indebtedness, as also to Mr. James Henry Hoseason, Demonstrator of *Materia Medica* in the Owens College, who went over part of the chemistry with me. To my teachers in pharmacology, Prof. D. J. Leech and Dr. R. B. Wild, of the Owens College, I must ever remain indebted.

This paper was set down for reading at the meeting of the British Medical Association at Bristol, but after final revision it was found to transgress the limit of space allowed, hence it was not sent in.

NOTES ON THE TREATMENT OF STRANGULATED HERNIA.¹

BY G. E. WHERRY, M.C. CAMB., F.R.C.S.,

*Surgeon to Addenbrooke's Hospital, Cambridge, and University Lecturer in
Surgery.*

I DO not propose to deal with the history of hernia and its treatment in the distant past; but I would begin by calling attention to the fact that radical cures for hernia were practised long before the operation of herniotomy was known in Europe, long before the publication of Pierre Franco's immortal little book in 1560, from which dates our knowledge of herniotomy as a life-saving operation. To come down to a much later date—what chapter in history surpasses in grotesque horror Lord Hervey's account of the death of Caroline, George II.'s queen, in 1737? She fell sick of strangulated hernia, and was operated on by Ranby on the fourth day, after being bled, blistered, and dosed with Daffy's Elixir and snake-root and Sir Walter Raleigh's cordial, and died after ten days of dreadful suffering. Her daughter, Louisa Queen of Denmark, died in the same way at the age of twenty-six. Curiously enough, another Queen Caroline, wife of George IV., died likewise of strangulated hernia.

The profession was justly horrified by a statement made last year in the *Lancet*, that, taking all the operations for strangulated hernia performed in St. Bartholomew's Hospital during the past ten years, the mortality came out at 40 per cent. In 1891 Mr. Treves gave the mortality at the London Hospital

¹ Abstract of a Paper read at the Branch Meeting of the British Medical Association at Bedford, June 21, 1894.

as nearly 50 per cent. Mr. Croft, of St. Thomas's, gives it as $29\frac{1}{2}$ per cent. As might be expected, much in regard to these figures depends on whether the period considered comes within what I may call the antiseptic period. But we may take it that the death-rate at St. Bartholomew's since the introduction of antiseptics is not very different from 35.8 per cent. Does any one think that this proportion of deaths is due simply to the gravity of the operation? We all know that they are in the main due to exhaustion—from starvation, retching, vomiting, or pain. We know well that general peritonitis is a rare sequence, that delay in operation means ever-increasing damage to the strangulated bowel, and that it is delay which is dangerous and fatal.

Only a few weeks ago I was summoned to an urgent case at the hospital. The resident officers had just admitted a man, suffering from vomiting and obstipation, who was obviously dying. He died as I walked into the hospital—died of strangulated hernia, the symptoms of which had been present for a week or more. Had he been admitted a few hours sooner, it would have been my duty to operate; but I doubt not that the result would have been fatal nevertheless, and the case would have gone to swell the awful mortality attributed to the operation.

Mr. Jonathan Hutchinson¹ has suggested that surgeons may have erred in neglecting the use of taxis. He argues that patients die from delay because they are afraid of the knife; whereas, if they were persuaded that there was good prospect of relief by taxis under chloroform, they would take the chance of operation, provided they were promised that taxis should first be fairly tried. Before giving an anæsthetic, however, I myself always try taxis, using the plan I call "coughing-taxis,"² in which the patient is directed to cough constantly during the manipulations. A week ago I saw in the hospital a woman with a tense femoral hernia, of the size of a small egg. For a fortnight she had had an irreducible swelling in the groin, but sickness and other signs had appeared only the day before. She would not or could not cough, but I managed to make her do so very successfully by means of a little dry salicylic wool held

¹ *Archives of Surgery*, 1894.

² *Lancet*, vol. i. p. 204, 1894.

under her nose. (Here let me remark in passing that salicylic acid is highly irritating to the mucous membranes, and hence it is very important to avoid its use as a lotion to the eye. Especially during cataract extraction, or recovery from that operation, let no careless nurse unpack salicylic wool in the neighbourhood of the patient.) By coughing-taxis the hernia was reduced in bulk, and it was no longer tense. Still, though there was now no sickness, I thought it wiser to operate. As I expected, I found only a mass of swollen congested omentum, which I drew down gently after notching Poupart's ligament. Finding no bowel inside, I ligatured round healthy tissue, and removed all the protruding omentum. In the interior of the mass of omentum there was a smooth-walled cavity which admitted my finger-tip, and I feel confident that this cavity had contained bowel which had been returned by taxis. The sac was securely stitched up as high as possible, and the probable result will be a radical cure. It is always wiser to cut away protruded omentum than to risk bruising and tearing it by pushing it through a narrow orifice.

But to advocate taxis is not to encourage delay. As the operation of herniotomy is now usually combined with an attempt at radical cure, I should deem it the better proceeding first to reduce the hernia by taxis, and then to perform the operation for radical cure as a separate step. In a case during the present year, of strangulated inguinal hernia in a woman, which I reduced by coughing-taxis, the patient later on returned with signs of strangulation. Thereupon herniotomy and the radical-cure operation were performed.

What are we to do with gangrenous bowel, or bowel in such a perilous state that it cannot prudently be returned to the abdominal cavity? Mr. John Croft wrote lately that in thirteen such cases he had formed an artificial anus, and that they all died. Truly these are desperate cases; but in my view the most hopeful course is primary resection of the bowel with suture of the divided ends. The cause of failure in cases of artificial anus is not, however, in the operation itself, but in the conditions preceding and accompanying the gangrene of the bowel.

In resection, the present method of suture with Lembert's

stitch is very slow, and not possible in every case owing to the exhaustion of the patient. It seems probable that in the future some appliance, like Murphy's button or a bone bobbin, may be devised, which shall shorten the time required for these resection operations. But, remembering that primary union of the resected ends is essential to success, it would appear that resection and suture offers at best a desperate chance, and that the formation of an artificial anus will remain the usual proceeding.

I would summarise my views on the treatment of strangulated hernia thus :—

1. All cases in which the signs of strangulated hernia have existed for less than twenty-four hours should be relieved by coughing-taxis, especially in the case of inguinal hernia which has been previously reducible.

2. If the taxis fails, chloroform should be given without delay, and herniotomy performed, combined with an attempt at radical cure.

3. In cases where taxis has relieved the strangulation, an operation for radical cure should be urged on the patient before active life is resumed.

One word more as to trusses. I find it advisable in a good many cases of one-sided hernia to advise a double truss; and though Coles's and similar patterns are still very popular, the light French trusses are stronger than they look, and my patients have liked them. For infants I have had the best success with a truss of Berlin wool or three-ply worsted, and I believe this simple appliance to be better than more elaborate manufactured articles.

SOME POINTS IN THE PROGNOSIS AND TREATMENT OF CROUPOUS PNEUMONIA.¹

BY PERCY KIDD, M.D., F.R.C.P.,

Assistant Physician to the London Hospital ; Physician to the Hospital for Consumption and Diseases of the Chest, Brompton.

If it should seem somewhat presumptuous to venture on a discussion of so well-worn a subject as the prognosis and treatment of acute pneumonia, I must plead, in extenuation of my offence, that pneumonia is one of the commonest of all the severe acute diseases with which we have to deal—in other words, that it is one of the most important. As with nearly all affections, our success in the department of diagnosis at present far outsteps the results of our efforts in the direction of prognosis and treatment. This fact need not discourage us, and indeed it is inevitable in the nature of things. Thanks to the invaluable methods of physical diagnosis bequeathed to us by Laennec and other great masters in the past, the diagnosis of pulmonary consolidation as a rule presents little difficulty. But when we attempt to classify acute pneumonia we are met with great and, at present, insuperable difficulties. It may perhaps be urged that such classifications are apt to be artificial and of little practical utility. The objection is only partially true. For no one can see many cases of pneumonia without being struck by the different types which the disease assumes, whether we consider the method of invasion, clinical course, physical condition of the lungs, complications, or termination.

Whatever view we may hold concerning the unity of lobar

¹ Read before the Thames Valley Branch of the British Medical Association, February 1894.

pneumonia, it is impossible to deny the important bearing of a due appreciation of the type of the disease on the question of prognosis and treatment.

Most authorities are now agreed in regarding pneumonia as an acute specific disease excited by the action of some virus. I will not take up your time with a discussion of the facts upon which this doctrine is based. The bacteriology of pneumonia is still in a somewhat unsettled state. Friedländer's original bacillus is not always to be found in the lung or sputum; the diplococcus of Fraenkel and Weichselbaum is of much more frequent occurrence. On the whole, although it cannot yet be said to be absolutely proved, it seems probable that in the diplococcus we have the actual infective agent.

PROGNOSIS.

The area and part of the lung involved, the degree of pyrexia, pulse, presence of complications or other disease, the constitutional reaction of the patient and his habits, especially with regard to alcohol—these constitute the generally recognised elements of prognosis. There is a general agreement amongst English authors that the pulse gives more valuable indications than the temperature, though the degree of pyrexia is always an important consideration. The physical state of the lung is of less moment. Consolidation of the whole of one lung is generally more serious than when the disease is limited to one lobe. Pneumonia affecting both lungs is universally admitted to be much more grave than when one lung alone is attacked. The existence of renal disease and pulmonary emphysema add enormously to the patient's danger. Among the more common complications pericarditis is the most serious. Pleurisy with effusion is far commoner, but it seldom constitutes a serious danger. A history of alcoholism is fraught with the most ominous significance. Dr. Sturges gives it as his opinion that in cases where delirium tremens develops the mortality is nearly 50 per cent. Apart from the influence of alcohol, tremor and delirium, whether active or quiet, if long continued, must be regarded as very unfavourable signs, pointing to severe implication of the nervous system. Lastly, the age of the patient is a

matter of the greatest consequence. In children the disease rarely proves fatal in the absence of serious complications. Young adults in similar circumstances generally recover. But in persons over fifty the prognosis is always a matter of great anxiety and doubt.

Pneumonia is regarded by some writers as a benign specific disease. The late Dr. Sutton considered that in fatal cases some antecedent disease of the lung or other tissue degeneration is almost invariably to be found. This view is altogether opposed to the results of my personal experience. In reviewing the autopsies I have made on cases of acute pneumonia, nothing has impressed me more than the fact that among them were several young persons of both sexes in whom not only was there no further disease of the lung or other organs, but the area of lung involved was surprisingly small—*e.g.* less than one whole lobe. Facts like this seem to admit of only one explanation—namely, that in pneumonia the danger lies in the influence of the specific toxins evolved by the disease. The extremely sudden dissolution which sometimes occurs in cases which die “from the heart” is unlike the usual mode of development of cardiac failure. If the cardiac paralysis were the result of a direct action of the poison on the myocardium, we should expect to find a period of gradually failing circulation preceding the final arrest. But in the cases to which I refer the cardiac collapse is so sudden that it strongly suggests that the fatal result is brought about by the action of the toxins on the nervous mechanism itself, whether central or peripheral. The implication of the nervous system is abundantly displayed by the tendency to delirium so common in severe cases. Moreover, in patients dying from cardiac failure it is quite exceptional to find any definite degeneration of the muscular tissue of the heart, a fact which shows that we must look beyond this organ for an explanation of the fatal event. It is held, I believe, by physiologists that what is commonly known as muscular fatigue is mainly to be explained by exhaustion of the corresponding nerve-centres. For a muscle remains susceptible to direct electrical stimulation long after it has ceased to respond to excitation applied to its corresponding cortical nerve-centre.

The high temperature of pneumonia will certainly not alone

account for the tendency to cardiac failure, for in some of the worst cases the temperature is never very high at any period, and in other pyrexial diseases, *e.g.* typhoid fever and acute tuberculosis, which last much longer than pneumonia, sudden failure of the heart is not a common occurrence. The therapeutic experiments recently made by F. and G. Klemperer with the antitoxines of pneumonia are full of interest, but further information is needed before any conclusions can be drawn concerning the general application of their method.

Leucocytosis.—It has recently been asserted by Von Jaksch and other German authors, and Dr. Osler, in his *Practice of Medicine*, has confirmed the statement, that in cases of pneumonia running a favourable course a marked leucocytosis occurs just before the crisis, whereas in unfavourable cases leucocytosis is either very slight or does not appear at all. For the last two years, at my request, my successive house physicians at the London Hospital—Messrs. Elsmore, Ingall, Strange, and Bower—have examined the blood of forty-eight patients admitted with acute pneumonia. The observations were made with Gower's hæmatocytometer. According to Von Jaksch the normal number of leucocytes in healthy blood may be taken as 7,000 in 1 cubic mm. The cases fall into four groups—

I. Number of leucocytes not exceeding 14,000, *i.e.* twice the normal. Total seven cases. The lowest reading, 6,000, was observed in two fatal cases.

II. Number of leucocytes above 14,000, and not exceeding 35,000, *i.e.* from two to five times normal. Total twenty-five cases.

III. Number of leucocytes above 35,000, and not exceeding 49,000, *i.e.* from five to seven times the normal. Total eleven cases.

IV. Number of leucocytes above 49,000. Total five cases—namely, 50,000, 50,000, 58,000, 60,000, 100,000.

Of the forty-eight cases ten proved fatal—

1. A man, aged 43; leucocytes, 6,000; alcoholism. Diarrhœa. Death on 6th day.

2. A man, aged 24; leucocytes, 6,000; pericarditis. Death on 6th day.

3. A man, aged 35 to 40; leucocytes, 13,000. Admitted

with severe lead poisoning. Contracted pneumonia in the hospital. Death on 6th day.

4. A man, aged (?); leucocytes, 15,000; alcoholism. Death on 6th day.

5. A man, aged 50; leucocytes, 15,000; delirium slight. Death on 6th day.

6. A man, aged 23; leucocytes, 19,500; alcoholism; delirium tremens.

7. A man, aged 62; leucocytes, 29,000; pericarditis.

8. A man, aged 44; leucocytes, 43,000; alcoholism. Death on 7th day.

9. A boy, aged 14; leucocytes, 58,000; pericarditis; much vomiting. Death on 10th day.

10. A man, aged 29; leucocytes, 100,000. A very severe case. Black vomit, sanguineous diarrhœa. Death on 8th day.

Among the cases that recovered a few are worthy of special mention.

Case I.—A man, aged 37. On the fifth day leucocytes 26,000. On the 7th day crisis. On the 8th day the leucocytes fell to 15,000. On the 11th day the leucocytes rose to 24,000, and now signs of pleural effusion were detected without any rise of temperature. The number of leucocytes in three days fell to 18,000, and on the 19th day the reading was 8,000. The fluid was gradually absorbed, and the patient was discharged cured on the 30th day.

Case II.—A child, aged 5; the subject of chronic nephritis. Leucocytes, 21,000. A well-defined crisis, followed by rapid and complete recovery.

Case III.—A man, aged 18; pneumonia of one entire lung; leucocytes, on 11th day, 12,000. On 12th day, crisis. On 14th day, leucocytes rose to 14,000. On 17th day, 12,000. On 31st day, 10,000. After the crisis an interval of three weeks of apyrexia ensued before resolution began. Gradual but complete recovery.

Case IV.—A boy, aged 14; had been in hospital with chronic tuberculosis of right apex. One month after his discharge he developed pneumonia of the whole right lung; leucocytes, 40,000. Crisis on 7th day. Rapid recovery, the consolidation of right apex remaining unchanged.

Although it would be unwise to draw any wide conclusions from 48 cases, nevertheless the observations recorded suggest certain legitimate inferences. In the great majority of the cases—namely, 41 out of 48, or 85 per cent.—a definite leucocytosis occurred. It is clear that the development of leucocytosis has no exclusive relation to the presence of pyrexia, for in the cases of delayed resolution and pleuritic effusion just described the

number of leucocytes rose after the temperature had fallen to normal.

The lowest reading in the whole series, 6,000, was found in two fatal cases, but against this we have the fact that the highest individual reading, 100,000, was noted in a particularly virulent case, in which death occurred on the eighth day. Looking at the fatal cases as a whole, we find that in three instances the leucocytes were below 14,000, *i.e.* less than twice the normal.

In four instances the leucocytosis represented an increase of from 2 to 4 times the normal. In the three remaining cases the increase was 6, 8, and 14 times the normal respectively.

A consideration of these facts should make us hesitate to base a favourable prognosis on the existence of even a marked leucocytosis.

Relation to Pulmonary Tuberculosis.—The relations between these two diseases may be considered from two points of view, both of which are related to the topic of prognosis.

1. The termination of acute pneumonia in pulmonary tuberculosis, long an article of faith, has now conclusively been shown to be one of the rarest of all the sequelæ of this disease. In fact, for purposes of prognosis this complication or accident may be regarded as a negligible quantity. There is at times some difficulty in discriminating between acute primary pneumonia and certain forms of pulmonary tuberculosis which commence abruptly with severe symptoms such as rigors and high fever. In the very rare instances where acute pneumonia appears to be followed by tuberculosis it is probable that the latter was actually present in an undeveloped form before the pneumonia began, and sprang into activity under the influence of the pyrexial process.

2. Development of croupous pneumonia in lungs already tuberculous. In Drs. Sturges and Coupland's work on *Pneumonia* (2nd ed. p. 129) we read: "The relationship between phthisis and pneumonia is not intimate. . . . Thus pneumonia occurring to the subjects of phthisis will run its ordinary course to its ordinary end without affecting, so far as can be seen, the chronic ailment; while phthisical persons, although they have a morbid liability to ordinary catarrh, are not more exposed

to pneumonia than their neighbours. . . . Both Louis and Walshe state that the mean duration of pneumonia in phthisical subjects is less than when occurring in healthy lungs. . . . It may be added that the subsequent course of phthisis is no way altered by an intercurrent attack of pneumonia." In his posthumous work on *Diseases of the Lungs and Pleura*, Dr. Wilson Fox expresses a very similar opinion. But, so far as I have been able to ascertain, no writer has emphasised another point in the relationship between the two diseases in question. I refer to the extraordinarily rare occurrence of true croupous pneumonia in persons already the subjects of pulmonary tuberculosis. During the eight years that I was pathologist at the Brompton Hospital I examined the bodies of nearly 700 patients dying from tuberculosis of the lung in all its stages, without meeting with a single instance of croupous pneumonia. Furthermore, during the thirteen years that I have been connected with that hospital I have not had personal knowledge of any phthisical patient contracting acute pneumonia in the hospital. In the course of some 500 autopsies personally conducted at the London Hospital during the last three years, I have met with one case of croupous pneumonia associated with circumscribed chronic tuberculous disease in each lung without any excavation. In several persons dying of acute pneumonia, arrested and limited tuberculous lesions were found in the lungs, but only in the single instance just cited was the tuberculosis actually progressive. To return to the clinical side, one example of pneumonia attacking a person already phthisical was met with in the case of the boy already referred to.

In this patient a well-defined crisis occurred, and resolution was rapid and complete, leaving the old apical disease in much the same state as it was a month before the acute attack.

It seems, then, that the occurrence of acute pneumonia in tuberculous lungs is a very exceptional event. This is not what we should expect on general grounds, for the supervention of an acute inflammatory process in the course of chronic disease is one of the best-established of pathological facts. It would almost seem that the victims of pulmonary tuberculosis enjoy some degree of immunity against croupous pneumonia. But whether the relationship of the two diseases amounts to a

definite antagonism I am not prepared at present to say. Considering how common a disease acute pneumonia is, and that it not uncommonly attacks patients suffering from other disease during their residence in hospital, it is, to say the least, a remarkable fact that tuberculous persons should be so generally spared.

TREATMENT.

I shall only refer briefly to two remedies—opium and strychnine.

Opium.—In an interesting paper contributed to the *British Medical Journal* in 1891, Dr. Wilks recalled attention to the value of opium in several diseases in which it has been commonly said to be contraindicated. There are perhaps few diseases in which opium does better service than in pneumonia when judiciously employed. Some writers have recommended the use of the drug in the early stages of the disease, to quiet the patient, relieve pain, give him sleep, and husband his strength for the period of the crisis. Others have used the same remedy in the later stages, to counteract the exhausting effects of delirium and insomnia. The only definite contraindication to the use of opium appears to us to be furnished by symptoms of impending exhaustion of the respiratory centre—shallow laboured respiration, drowsiness, and a tendency to cyanosis. Opium is certainly not a drug to prescribe in a routine way, though it is not denied that excellent results may be adduced in favour of such a practice. Owing to the marked tendency to recovery manifested by pneumonia, it is confessedly very difficult to gauge the results of rival methods of treatment. In no disease is it more important to treat each case on its own merits.

The chief indications for giving opium, with the reservation just mentioned, seem to be these—severe pain that cannot be controlled by other measures, insomnia, restlessness, and delirium. It is not of course claimed that every case manifesting these symptoms should be treated with opium: at the same time such symptoms may be often effectually and always safely treated by opium at any stage of the disease. My late

house physician, Mr. A. C. Elsmore, M.B., fired by a perusal of Dr. Wilks's paper, made extensive observations on the use of opium in pneumonia during his period of office, and I have to thank him for careful notes of many of the cases.

The drug was mostly given in one considerable dose at bed-time, either in the form of Dover's Powder (10 grains) or a hypodermic injection of morphine ($\frac{1}{4}$ to $\frac{1}{2}$ of a grain). In one group of cases, Dover's Powder was given every night from the time that the patient came under observation until the crisis. In another class the same drug was given for the first three or four nights, and was discontinued after its good effects had been manifested. Lastly, in a third class, morphine was injected once or more for the relief of some particular symptom. It does not appear that any marked difference was noted in the results derived from the several methods of administration. It seems best on the whole to restrict the use of opium to the relief of definite symptoms, and then to give one fair-sized dose, followed if necessary by a second.

Mr. Elsmore's notes show that the number of respirations was generally reduced by 10 to 12 in the minute, the pulse being either unaffected or exhibiting a very transitory reduction in the number of beats. No marked effect on the expectoration could be traced. In one fatal case, associated with severe alcoholic delirium, opium had little or no effect, though injections of hyoscine ($\frac{1}{10}$ of a grain) gave temporary relief. But in another case of delirium tremens, which ultimately succumbed, morphine for many nights gave the patient six or seven hours' sleep without exercising any prejudicial effect. In this patient death occurred on the twenty-fourth day, and was shown by the autopsy to be due to an independent pyæmic process. In several severe cases of double pneumonia with delirium and insomnia the free use of morphine appeared to save life.

Strychnine.—The only other remedy to which I shall refer is strychnine. This drug I have used for some years since reading a paper by Dr. Herbert Habershon published in *St. Bartholomew's Hospital Report* for 1886, in which he narrated a series of cases of cardiac failure treated by strychnine. His list included in addition two cases of double pneumonia. In this paper Dr.

Habershon insisted very rightly on the importance of giving strychnine by hypodermic injection, on account of the imperfect and slow absorption from the stomach in severe disease. Dr. Habershon also expressed the opinion that the efficacy of strychnine is due to its action being exerted on the excito-motor nerve apparatus of the heart and on the respiratory centre. For, as he points out, strychnine often succeeds when other remedies like alcohol and ether have failed, the effect of these being largely directed to the muscular fibres of the heart and to the arterioles. The action of strychnine brings indirect support to the view already expressed, that in pneumonia what we have to fear is the influence of toxins on the nervous system. On this hypothesis cardiac failure is really only an expression of exhaustion of the nerve-centres, and is therefore an indirect effect of the poison.

The drug was employed mainly in the tabloid form, $\frac{1}{10}$ of a grain being dissolved in 4 or 5 minims of water and injected subcutaneously or directly into the gluteal muscles. The latter method is to be preferred, as it appears to cause less pain. The indications for the use of strychnine are mainly derived from the pulse. If the tension begins to sink, or if the frequency of the beats be much increased, strychnine should at once be tried. If the respiratory movements also become less vigorous, an additional reason is afforded for the use of the drug. The action of strychnine in increasing the tension and size of the pulse, as well as the vigour of the respiratory movements, is often manifested in 10 to 15 minutes. When the rally is not maintained, $\frac{1}{10}$ th of a grain may be injected every two hours, until three or four doses have been given, the injections being afterwards continued at longer intervals, once or twice in twenty-four hours, until the pulse and respiration right themselves. Indications for persisting with the strychnine must be mainly sought in a careful consideration of the pulse. If the heart seems to answer to the injections, they should be persevered with at intervals, for at least twelve to twenty-four hours, until the danger is averted. If no definite result is produced on the pulse, the treatment must be suspended. In one severe case of double pneumonia, with great restlessness and irregularity of the pulse a few hours before the crisis,

injections of strychnine produced an excellent result, the pulse became more regular, and the patient passed safely through the crisis. In another case, in a young man with wild delirium (apparently not alcoholic), which had resisted large doses of chloral and bromide of potassium, strychnine seemed to quiet him and improve his pulse, the patient making a good recovery. Delirium has been regarded by many authors as an indication for alcoholic stimulation. In some cases at least injections of strychnine are more satisfactory, the effect being produced probably in an indirect manner through its action on the cardiac and respiratory centres.

In conclusion, I must apologise for the fragmentary and sketchy character of these observations. The object which I had in view was to direct attention to a few points only on which it seemed desirable to invite discussion.

Reviews.

A Dictionary of Medicine, Including General Pathology, General Therapeutics, Hygiene, and The Diseases of Women and Children. By Various Writers. Edited by RICHARD QUAIN, Bart., M.D. Lond., LL.D. Ed., F.R.S., President of the General Council of Medical Education; assisted by FREDERICK THOMAS ROBERTS, M.D., B.Sc. Lond., F.R.C.P., and J. MITCHELL BRUCE, M.A. Aberd., M.D. Lond., F.R.C.P. New Edition, Revised Throughout and Enlarged. In two Volumes. Pp. 2,518, with 181 illustrations. London: Longmans, Green, and Co. 1894.

It is nearly twelve years ago since the first edition of Quain's *Dictionary of Medicine* appeared, and the success which it has attained must have been most gratifying to Sir Richard Quain and his assistant-editors as evidence of the great value of the work, and the appreciation with which it has been received by the profession at home and abroad. Since its appearance in 1882 more than 33,000 copies have been issued in this country and America, affording ample testimony of the intrinsic merits of the book, and of the success of the original purpose—"to place in the hands of the practitioner, the teacher, and the student a means of ready reference to the accumulated knowledge which we possessed of scientific and practical Medicine, rapid as was its progress, and difficult of access as were its scattered records." The work has in fact come to be regarded not only as a dictionary but as a treatise of systematic medicine, containing monographs on all the more important subjects of scientific medicine and pathology written by the most competent authorities. It is therefore not surprising that the *Dictionary* has been found almost indispensable by members of the profession.

In his preface to the new issue the editor remarks that "never in the history of medicine has progress been so rapid as during the last twelve years. Not only has a knowledge of old and familiar facts been improved, but an entirely new develop-

ment of our science has occurred, more especially with reference to the causation of disease and, it may be added, the preservation of health." In view of keeping abreast with modern scientific research and recent clinical and therapeutical knowledge, the several articles have been revised for the most part by the original writers; when death has rendered this impracticable, the task has been committed to others equally competent. A long list of additional contributors is evidence of new material, which has considerably increased the bulk of the work as compared with the former issue. In this connexion we may say that we much wish that it had been thought fit to place after the list of contributors the headings of articles written by them; and that it would have greatly added to the convenience of the book if a good index had been added. The type in the new edition is a distinct improvement on the former one.

The editor gracefully acknowledges the great assistance he has received in the revision of the work, and offers his special thanks to his assistant-editors, Dr. Frederick Roberts and Dr. Mitchell Bruce; and also to Mr. John Harold, Medical Registrar to Charing Cross Hospital, who has assisted in revising the proof-sheets and passing the work through the press.

It will be impossible in a limited space to do more than briefly refer to some of the articles. We shall begin with those which appear for the first time in the new edition, or which relate to subjects receiving special attention at the present time. Amongst those embodying entirely new material may be noticed several by Dr. Sidney Martin. One is on Albumoses, in which the characters of the different varieties are concisely described, followed by a more detailed account of Albumosuria and Peptonuria, with a discussion on the pathology of this condition. The source of origin of Albumoses and Peptones in the body, their absorption by the blood, the appearance of them in the urine, and the physiological effects which are produced by their injection into the circulation of a dog are fully considered. Later on, the great questions of Immunity and Phagocytosis are treated in a masterly manner by the same writer, who acknowledges his indebtedness to M. Metchnikoff for his valued assistance in the preparation of the latter article. The article on Ptomaines is written by Dr. Arthur P. Luff, the Official Analyst to the Home Office. Sir William Turner, writing on Heredity, criticises the arguments of Weismann, who maintains that the germ plasma is not modified by the habits and mode of life of the individual, and conceives it to be transmitted from one generation to another, uninfluenced by the conditions of life in which the individual is placed. Acromegaly is well described by Mr. Rickman J. Godlee, who

was one of the earliest in this country to distinguish the remarkable enlargement of the bones peculiar to this malady. Professor Greenfield and Dr. Robert Muir, of Edinburgh, deal very fully and philosophically with the subject of Micro-organisms. This article, in every respect a masterpiece of sound (and in great measure original) work, has its value greatly enhanced by the introduction of many excellent illustrations, drawn from specimens specially prepared in the laboratory of the University of Edinburgh. Dr. Ord has materially added to the completeness without increasing the extent of his former account of Myxœdema, the pathology and treatment of this remarkable disease receiving substantial addition in accordance with the progress recently made in this direction. Actino-mycosis is another new article, from the pen of Professor Greenfield, and is illustrated by a woodcut. Dr. Frederick W. Mott undertakes the article on Pernicious Anæmia, the pathological features and the conditions of the blood being fully dealt with. This article has three illustrations—one showing flame-shaped retinal hæmorrhages, another the microscopical appearances of the red blood-discs, and a third showing a section of the liver after treatment with ferrocyanide of potassium solution and hydrochloric acid. The related articles on Leucocythæmia and Lymphadenoma have been thoroughly revised by Dr. Frederick Taylor. Anæsthetics, written originally by the late Mr. Clover, has been revised by Mr. G. H. Bailey.

The articles on Croup and Diphtheria are by Dr. Robert Maguire. It will be observed that Dr. Maguire prefers to retain the old nomenclature, and to give the name of "croup" to a disease which he defines as an "acute febrile affection, occurring in childhood, accompanied by inflammatory swelling of the mucous membrane of the larynx, and in some rare cases by the formation of a fibrinous false membrane." He acknowledges that by far the majority of cases of membranous laryngitis are due to diphtheria, but that there is also indisputable evidence that the affection may occasionally arise from other, simple, sources. It is an open question whether it would not cause less confusion to apply the term "Membranous Laryngitis" to the few non-specific cases, and to reserve the name "Croup" for the group of clinical symptoms, as recommended in the Report on that subject by the Committee of the Royal Medical and Chirurgical Society in 1879. The effect of hygienic conditions as a source of diphtheria is discussed, and the observations of Dr. Thorne are quoted, in which he remarks that diphtheria has greatly increased of late years, especially in towns; whilst improvements in hygienic surroundings, and especially in the disposal of sewage, have received much more attention. Dr.

Maguire, however, considers that the association between the two is very positive. The whole subject is treated in a thorough and scientific manner.

Mr. J. Bland Sutton now writes the important article on Entozoa, and a short account of Psorospermia. Three remarkably interesting monographs on Chyluria, *Filaria Sanguinis Hominis*, and Negro Lethargy are from the pen of Dr. Patrick Manson. The curious malady of Negro Lethargy, the Sleeping Sickness, has formerly received various interpretations, the cause having been referred to alcohol, malaria, poisoning, and so forth. Dr. Manson believes that there are some grounds for suspecting that it is in some way connected with the recently discovered blood-worm, *Filaria Sanguinis Hominis Perstans*. Certain it is that this parasite has been found in the blood in a large proportion of the cases in which it has been properly searched for. The researches of Lewis and Cobbold into the life-history of the *Filaria* are given, with illustrations of the three varieties of this worm now known—the *nocturna*, *diurna*, and *perstans*.

The articles on skin diseases are shared by Dr. Robert Liveing, Dr. Sangster, Dr. T. Colcott Fox, Dr. Mapother, Dr. Radcliffe Crocker, Dr. Pringle, and Dr. Manson. Dr. Thin writes on Psilosis, a subject to the study of which he has devoted much time, as our readers know. He now considers that this disease is in all probability of bacterial origin.

We are pleased to observe that a physician and a surgeon—Dr. W. H. Allchin and Mr. Frederick Treves—have jointly undertaken the important article on Perityphlitis, the nature and operative treatment of which have received so much attention and study during the last few years from Mr. Treves. The article on Influenza, which a footnote tells us appears in its original form as written by the late Dr. Peacock, is followed by a Supplement, bringing the subject down to the present time. The Supplement contains an account of the epidemics of 1889, 1890, 1891, 1892, and is written by Dr. Dawson Williams. It is interesting to note the difference of opinion of the two writers as to the infective power of the disease. Dr. Peacock, in his classical description of this affection, remarks: "The almost simultaneous outbreak of the epidemic in places widely apart, the seizure of a large proportion of the population of a town or district within the course of a few hours, and the sudden illness of individuals or bodies of men visiting a locality where influenza is or has very recently been prevailing, and previous to any direct intercourse with any persons actually suffering—are all circumstances opposed to the notion of the disease being dependent on infection in the ordinarily understood sense." Dr. Dawson Williams, on the other hand, strongly

supports the view that influenza is propagated mainly, if not entirely, by human intercourse. He bases his opinion upon the history of the recent epidemics, and adduces corroborative testimony from the report of Dr. Parsons to the Local Government Board inquiring into the epidemics of 1889 and 1890.

Dr. J. F. Payne revises the article on the Plague, the historic interest of which is revived at the present time.

Mr. Shirley Murphy, Medical Officer of Health of the Administrative County of London, now deals with the subject of Quarantine, and the provisions of the Quarantine Act. The able article on Public Health is by Sir George Buchanan. And, indeed, one of the most commendable features of the new edition of this work is the way in which it has been kept fully abreast of the times in this subject in its many aspects. The article on Sanitary Laws, by Mr. Casson, the highest possible legal authority on the subject, ought to be in the hands of every medical man who holds a public appointment under the Local Government Board. Dr. Whitelegge's treatment of Vital Statistics is also of great though necessarily of less practical interest.

An entirely new and important addition, on Life Assurance, is from the pen of Dr. James Edward Pollock, the distinguished President of the Association of Insurance Medical Officers. Dr. Charles A. MacMunn, in writing on the Spectroscope in Medicine, points out the uses to which this instrument may be applied in the study of disease, or in medical jurisprudence for the detection of bloodstains on clothing, knife-blades, &c., and to the physician for the detection of pigments in various fluids. A coloured plate depicts the most important spectra of pigments. Amongst new articles that strike us as likely to prove of great service to the busy practitioner are Dr. Andrew Currie's account of Hypodermic Medication, and Dr. Crocker's systematic description of Drug Eruptions.

Sufficient praise can scarcely be given to Dr. Bastian, Dr. Gowers, and Dr. Ferrier for the thorough fashion in which they have rewritten the articles on the ever-advancing subjects of diseases of the nervous system. Professor Tweedy's articles on the Pupil and other subjects connected with vision are models of exposition. Allusion is made by Dr. Buzzard, in his account of Pain, to the great value of the recent contribution by Dr. Head on disturbances of sensation with especial reference to the pains of visceral disease.

The articles on renal disease are by Sir Thomas Grainger Stewart, Sir William Roberts, and Dr. Lauder Brunton. The last has also undertaken the laborious task of writing or revising many articles on therapeutical subjects. Surgical affections, so far as they have received notice, have been

entrusted to the able hands of the late Marcus Beck, of Messrs. Durham, Godlee, Treves, Stanley Boyd, Bowlby, and others. Affections of the eye have been discussed in a very clear and able article by Mr. Brudenell Carter; the main article on vision is by Mr. Nettleship. Dr. Whistler has produced an entirely new and remarkably complete article on diseases of the nose. Finally, the fullest measure of praise must be given to the numerous excellent articles on the lungs, lymphatic and digestive systems by Dr. Frederick T. Roberts, and to those on the heart and vascular system, rheumatism, &c., by Dr. Mitchell Bruce.

The editor and assistant-editors must be heartily congratulated on the completion of the laborious task which they have so well accomplished. To Sir Richard Quain the whole profession of this country (deeply indebted to him in so many other ways) will be grateful for having placed once more in their hands a complete but succinct and thoroughly sound book of reference, to which they can turn with confidence in their difficulties. Sir Richard's own contributions to the subject-matter of the work are mainly on subjects in pathology and practical medicine with which his name is inseparably associated.

The labour which must have been connected with the compilation and rearrangement of such a mass of material as this book represents can be known only by a few. The short definitions of many words, not dignified with an article under them, and even the cross-references throughout the volume, must have demanded much time, knowledge, and care. The excellence and thoroughness of the revision have gone far to make the *Dictionary of Medicine* the most complete work of reference in the English language on all subjects relating to scientific and practical medicine.

Text Book of Abdominal Surgery: A Clinical Manual for Practitioners and Students. By SKENE KEITH, F.R.C.S. Ed., assisted by GEORGE E. KEITH, M.B., C.M. With illustrations. Edinburgh and London: Young J. Pentland. 1894.

THIS work is written by surgeons hitherto known to the profession chiefly as gynæcologists. It is entitled a Text Book of Abdominal Surgery; and to make it complete, the subjects of gastric, intestinal, hepatic, splenic, and renal surgery are included. A novel feature, and we think one constituting a distinct advance on other more strictly surgical text books, is a fair summary of the medical or palliative methods of dealing with the conditions described. On the other hand, the authors have also included such modes of treatment as dilatation, curetting the uterus, galvanism according to

Apostoli's method for fibroids, and also the operation of vaginal hysterectomy for carcinoma, none of which ought strictly to be included in a work on abdominal surgery. We have not space to criticise the surgical treatment of many of the conditions dealt with, but the following will serve our purpose.

We note with satisfaction that the double incision in nephrolithotomy is preferred to the single lumbar incision.

The authors have made several interesting experiments on the *cadaver*; and have, amongst other facts, determined that after performing external œsophagotomy and gastrotomy the fingers can be made to meet, and so explore all parts of the œsophagus, thus being able to feel strictures or foreign bodies wherever they may be. They do not appear to have had any practical experience of such operative manœuvres during life, for illustrative cases, which render the chapters on gynaecological operations so interesting and useful, are omitted.

Considering that 120 pages are devoted to gastro-intestinal surgery, hardly enough space is given to colotomy, especially as regards the after-treatment of the artificial anus, upon which the relative comfort of the patient so much depends.

On the subject of ovariectomy, the authors are of course full of information. They fix the fourth month of gestation as the latest date upon which a complicating ovarian cyst may be dealt with by ovariectomy, for fear of premature labour being induced. This seems too early a date to fix upon; and it entirely ignores the great risk of axial rotation or rupture of the cyst at the time of delivery. Our experience also proves that the authors greatly exaggerate the tendency to labour being induced by a carefully conducted ovariectomy up to the sixth month. The authors' views as regards the debatable points of drainage tube, the routine use of morphine after operation, and the choice of an anæsthetic are well worth reading. Whilst they evidently use the drainage tube more than most operators, they only do so when they think there is anything to drain. The use of morphine is disapproved of as a routine line of treatment, but they so strongly approve of it in suitable cases that we find it being given in almost all the cases recorded in the book. They prefer ether to chloroform, believing—curiously—that ether causes less sickness.

We need scarcely say that chemical cleanliness is throughout insisted upon—in other words, they advocate perfect cleanliness, with the use of antiseptics for the hands, instruments, and patient's skin, as well as for the dressings.

The authors view "exploratory aspiration" as compared with "exploratory incisions" more favourably than most surgeons, and yet state in the same chapter that there are only two diseases where a positive diagnosis can be made by the

microscopical examination of the fluid withdrawn, namely—in hydatids and malignant disease. We think a good many surgeons would omit the latter.

We turn to the question of hysterectomy with much interest, for in August 1889 Dr. Thomas Keith (with Mr. Skene Keith as joint author), in "The Treatment of Uterine Tumours by Electricity," says in the preface: "Since we began the treatment of fibroids by electricity, now more than two years ago, we have ceased to perform any operations on the uterus by abdominal section. For myself, I have always had grave doubts if I were justified in performing such operations at all, especially hysterectomy, for the mortality attending this operation is out of all proportion to the natural history mortality of uterine tumours, and the results of it are out of all proportion to the benefits received by the few. Hysterectomy is a hazardous operation for a disease which of itself rarely shortens life." The present authors, however, consider that hysterectomy should be advised "in large tumours in young women, in fibro-cystic tumours, in soft œdematous tumours, where there is a profuse watery discharge not due to anæmia, and where both Apostoli's treatment and removal of the ovaries have failed." When we compare these opinions with each other (and we might have included the still stronger protest written by Dr. Thomas Keith in the *British Medical Journal* for June 1889), we can only wonder what has produced the change. Is it that their enthusiasm for Apostoli's treatment is waning? This we are unable to determine, for, though sixteen pages are occupied with its consideration, there is nowhere any evidence that their belief in its power to cure *symptomatically*, and to diminish the bulk of certain fibroids, has in any way diminished.

As regards the much-vexed question of removal of the appendages, the subject is divided, as it should be, into removal of diseased appendages, and removal of healthy appendages for disease elsewhere. The authors recommend that healthy ovaries may under certain circumstances be removed "to make an artificial change of life, and thus arrest the growth and cure the symptoms of a fibroid tumour of the uterus; for the same purpose they may be required to be removed in cases of infantile uterus; and in some cases of mania and epilepsy good success has been obtained by their excision." Here again the authors' opinion varies much from that already quoted as written in 1889, and the following: "The removal of the ovaries require no surgical skill for its performance. It is a great mutilation to a woman, being simply castration; and women are beginning to find it out. It is not always successful," &c. We were further told that

they performed none of these operations between 1887 and 1889. When and why have they resumed them?

We cordially agree with the opinion that "when pus in a pelvic abscess can be reached from the vagina, it ought always to be opened from below, but when it lies beneath the abdominal wall the incision must be made from above."

The subjects of Cæsarean section and Porro's operation are shortly and concisely dealt with in the last chapter.

The work is excellently printed, and we are unable to find any errors due to careless revision.

We have no doubt that this treatise will add greatly to the reputation of the authors; and if it does not much advance our knowledge of the subjects dealt with, this is simply because abdominal surgery is so perfected that it leaves but little room for novelty.

Diseases of the Nose and Throat. By F. DE HAVILLAND HALL, M.D., F.R.C.P., Physician to Out-patients, and to the Throat Department, Westminster Hospital. London: H. K. Lewis. 1894.

IN the preface to this volume the writer makes some unnecessary apology for having added another book to the long list of those dealing with diseases of the throat and nose. No such modest disclaimer is needed in reference to this accurate and well-planned compendium. The majority of the works which deal with these regions fall mainly under two categories—either they are unwieldy, and overloaded with a mass of contentious and unnecessary detail, or, on the other hand, they attempt to compress their subject-matter into too narrow a compass, and hence the information which they convey is not unfrequently somewhat too meagre and scanty. Dr. Hall has happily escaped from both these dangers, and maintained an excellent sense of proportion throughout. The volume is divided into three main sections. In the first, diseases of the nose, accessory sinuses, and naso-pharynx are considered; then follow diseases of the pharynx; and, finally, the various affections of the larynx are very clearly delineated. Additional value is given to the work, for those who may wish to study any particular question at greater length, by a copious series of references to all the best British and foreign literature of recent date.

In another respect, also, Dr. Hall's work is worthy of commendation—it is well and freely illustrated, but it is not, at the same time, overcrowded with diagrams of mere variations of instruments; and the author only figures those which he has found most useful in his own experience. Authorities are quoted throughout, in connexion with all points on which any difference of opinion might exist as to the precise pathology or

treatment. The work also will be found very useful by all who are commencing the study of the subject-matter, as clear directions, accompanied by bold and accurate diagrams, are given for all the mechanical details concerned in the examination of the parts. An appendix of formulæ and a good index complete the volume. The whole forms a well-printed and well-illustrated handbook, which, under one cover, deals fully and concisely with all the diseases of the throat and nose.

Lunatic Asylums: their Organisation and Management. By CHARLES MERCIER, M.B., late Senior Assistant Medical Officer at Leavesden Asylum, &c. London: Charles Griffin and Co. (Ltd.) 1894.

WE can speak with unstinted praise of the manner and style of this book, and also of the way in which it has been produced; for if the print throughout is perhaps a little small, the subject-matter is excellent, and the practice of printing the headings in a heavier type most useful.

When one contrasts the ancient treatment of the insane—with whips and fetters—with the more modern method of lodging these poor sufferers in palatial buildings, well warmed, well clothed, well fed, well occupied and amused, one perhaps sees here more real advance and progress than in some other more loudly vaunted branches of our medical treatment. Such advancement has, we are inclined to think, another great merit—that it does not show. It has come upon us in a measure imperceptibly. When we think of Hogarth's chained madman lying on straw, or turn to *King Lear*, where

The country gives me proof and precedent
Of Bedlam beggars, who with roaring voices
Strike in their numb'd and mortified bare arms
Pins, wooden pricks, nails, sprigs of rosemary;
And with this horrible object, from low farms,
Poor pelting villages, sheep cotes and mills,
Sometime with lunatic bans, sometime with prayers,
Enforce their charity,

we can form a vivid picture of what was at no very remote period of time most probably the condition of every village and township throughout the land.

The author is inclined to think that much of his subject-matter will be received by the present managers of asylums as impracticable and possibly open to derision, but we do not blame him for setting up a high ideal to be striven for—and we believe with ultimate success.

When one visits an asylum at the present time, good as are all the arrangements, and excellent as is as a rule the management, still there is much that is distressing; and we agree with Dr. Mercier that there is much still to be done. Even if his

ideal is not reached, still much advantage will result from every effort towards it. We have read this work with very great pleasure, and there is nothing we can take exception to, but much that is suggestive. Thus, we would urge governing and electing bodies to lay some considerable stress on the men they select as subordinate medical officers. It is possibly of much more importance to elect men of versatile character to such posts than deeply read and gifted scientists. With regard to the superintendent of an asylum, we have little doubt ourselves that the administration should be in the hands of the chief medical officer: we can advocate no divided leadership. Granted that scientific research may possibly suffer a little as far as he is concerned, still there are plenty of able and willing coadjutors in this department in all our modern asylums. It is much better to have the chief medical officer as the superintendent, for the best of all reasons, that there is really no one else available; and in these days a medical man is expected to know about almost everything, even, as the author hints, to the comparative merits of stock bricks, malms, and grizzles.

We think this book should be in the hands of all those engaged in the treatment of the insane, be they medical or lay, and, further, that the subject-matter is of the very greatest possible interest and instruction to every one connected with the profession.

Transactions of the Association of American Physicians. Eighth Session. Vol. VIII. Philadelphia: 1893.

THIS volume of the *Transactions* is of a highly practical character, containing some thirty papers on a variety of interesting clinical subjects. Of these we might instance the papers by Professor Osler; Note on the Use of Quinine in Chorea, by Dr. Horatio C. Wood; Gonorrhœal Myocarditis, by Professor Councilman; Subphrenic Abscess, by Dr. S. J. Metzler; The Detection and Significance of Proteids in the Urine, by Dr. C. W. Purdy; and Professor Heneage Gibbes's paper On the Parasitic Nature of Cancer. The *Transactions* reflect much credit on the contributors and the Recorder, Dr. Minis Hays.

The Student's Hand-book of Medicine and Therapeutics. By ALEXANDER WHEELER, L.R.C.P. Edin. 8vo. Pp. 396. Edinburgh: E. and S. Livingstone. 1894.

The student of medicine must be much puzzled nowadays as to which text-book he should select for his guide. Scarcely a month passes without the appearance of some new work or a new edition of an old work. Dr. Wheeler considers the student is too much lectured to, and that the fact is ignored that a knowledge of practical medicine can only be obtained by the

application of the principles of pathology, physiology, and anatomy to the deviations from health as observed at the bedside. His aims therefore in presenting this volume are, briefly, to enable the student whilst engaged in clinical work to digest the salient points regarding the disease which he is studying at the bedside; and, secondly, to enable the practitioner to see at a glance the principal points of each disease which his experience will enable him to elaborate.

With the systematic daily and hourly clinical instruction which the student of medicine receives, at any rate in London hospitals, there ought not to be any need of a work such as this. We maintain that the student should prepare his own concise notebook, as by doing so he teaches himself accuracy of description, and method in the arrangement of his knowledge.

One word only with respect to details. The references to the *filaria sanguinis hominis* are not up to date, and under pernicious anæmia no mention is made of the fatty degeneration of the heart. There are many good points about the work as a whole, but we should like to have seen the prescriptions unabbreviated, and the spelling in parts other than the following: "schirrrhus cancer," " β -naphthol," "malaena," "cholorœc," "guaicum," and "santonine."

Clinic of the Month.

Thyroidectomy for Graves' Disease.—Dr. Putnam records the case of a girl, aged 16, the subject of this disease for four years, who had been subjected to all the usual measures, including electrical treatment, for three months without benefit. It was therefore decided that part of the thyroid should be removed. On admission to the hospital her pulse was 140, respirations 28, and temperature 100.2° . Nausea was said to be present in the morning, and there had been no catamenia for four months. In the front of the neck there was a tumour, more prominent on the right side; it was soft, and there was a distinct thrill on palpation; a systolic murmur could be heard over it, and the swelling moved with the trachea. The operation was done by Dr. J. C. Warren on February 2. An incision was made on the right side over the tumour and parallel to its anterior border. The dissection was made from above downwards, and the right half of the tumour was freed from its surroundings; a ligature was then placed round the isthmus, and the right half was removed. There was very little hæmorrhage, as the bleeding points were controlled or tied at each step of the operation. A dry dressing was put on. The patient made a good recovery from the ether, but she was rather restless for the rest of the day; she had a slight cough, but no dyspnœa. On February 6 the gauze was removed, and the wound looked in perfect condition. Next day patient was doing well, but had vomited three times during the night. On the following day there was much restlessness and vomiting; nutrient enemata were ordered, and ice and champagne by the mouth. On February 9 there was much restlessness during the early part of the night, and the nutrient enemata were not retained. At 2 A.M. her pulse was 165, but she went to sleep after an injection of morphine and hydrobromate of hyoscine for about two hours. Shortly after 5 A.M. her pulse was discovered to be very rapid and weak, and in a few minutes she was dead. (*Journ. of Nerv. and Ment. Dis.*, June 1894.)

Gonorrhœal Endocarditis.—H. Richardière records a case of this kind. The participation of the heart in gonorrhœa shows itself very often in the way of endocarditis. It is however but seldom diagnosed (until now, about thirty cases have been observed); it is mostly associated with affections of the joints; and it arises first as a rule a considerable time after the commencement of the gonorrhœal disease. There is a severe infectious form recognised, which, generally beginning with rigors, is accompanied with severe septic and pyæmic symptoms, and rapidly ends in death. Further, there occurs more frequently a simple endocarditis, which behaves in its origin, course, and results (valvular lesions) like the endocarditis of articular rheumatism. In Richardière's patient a gonorrhœal inflammation of the wrist and finger joints had first of all arisen, which completely resisted the action of sodium salicylate, and was first benefited by absolute rest. The endocarditis then set in, with increase of temperature (39° C.), and led to disease of the mitral orifice, which still existed when the patient was discharged. (*Centrblt. f. innere Med.*, No. 14, 1894.)

Tuberculous Disease of the Mouth.—M. Giraudeau read the following case. The patient, *æt.* 42, had suffered from phthisis for twelve months, and had a large cavity at each apex. Six months after the onset a painless ulcer appeared on the mucous membrane of the mouth, at first limited to the part in front of the two lower central incisor teeth. This gradually spread, until it extended from the first right molar tooth to the first left molar. It only caused pain during mastication and speech. The teeth next became bare, then loose, and finally were picked out by the patient with his fingers; none of them were carious. There was no history of syphilis, nor of any poison due to his occupation. One month later he was received into the Hôpital Laennec, when a large granulating ulcer, covered with yellow points, exactly resembling those of tuberculous ulceration of the tongue, occupied the space between the molars on each side. The ulceration was rather on the anterior aspect of the jaw, the posterior border being rather the higher in the space; between them were the empty sockets of the teeth, covered with a sanious discharge mixed with mucus and débris of food. The granulations were large and bleeding; and in places there were cavities filled with pus which was easily expressed. On the left side of the upper jaw the last molar tooth was in the centre of a similar ulcer; it was only retained by a little mucous membrane, and was easily removed with a pair of dressing forceps. At the necropsy it was found that the alveoli were destroyed, and that the depth of the jaw in the middle line

was only 11 mm., instead of 25 mm. On the right side the nutrient foramen was close to the upper border of the jaw, while on the left there was no trace of it. Under the ulcer the periosteum was thickened and easily detached, but it was healthy beyond. The edges of the upper border of the bone, composed of compact tissue, were irregular and bevelled; the cancellous tissue was composed of a spongy material, friable, with larger interspaces filled with a greyish pulp, breaking down very readily under a stream of water. The bacteriological examination showed the presence of Koch's bacilli, which were found both in the gum and the spongy tissue of the jaw. The chief interest of the case is in the deep-seated nature of the ulceration involving the jaw and its periosteum, instead of being merely superficial. (*Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris*, p. 414, No. 21, 1894.)

Quinine Amaurosis.—Dr. J. H. Claiborne read before the New York County Association the case of a young man who had been taking quinine for some time in doses of from 15 to 20 grains daily. Having been working hard in a damp shop, he determined to take a full dose and secure a good night's rest. He accordingly filled the palm of his hand nearly full with two-grain pills and swallowed them all. After that he remembered nothing until several days later, when he found himself blind. The doctor did not see him for eight days, but he had been attended by another doctor, who found him semi-comatose and deaf, with widely dilated pupils; from this state he had improved somewhat. Dr. Claiborne found that he had absolutely no perception of light in either eye; he complained however of seeing many-coloured figures which would change their hue, the sensation of red prevailing. The pupils were fixed and moderately dilated, somewhat irregularly indeed, the larger axis of the pupils being horizontal. The optic discs were pearl-white, and the vessels much smaller than in health, although not so small as they subsequently became. The eyes were divergent and staring, and the sclerotics preternaturally white. He was put upon iodide of potassium, and the dose increased until he took 50 grains three times a day; he then had an attack of plastic iritis, which left his pupils somewhat irregular, but he had perception of light. In the course of the next few months his vision improved so far that he was able to see objects dimly, but better in a reflected than in a direct light. The peripheral vision improved more than the central. More than a year later his eyes were again examined. With the right he could see movements of the hand at six feet; with the left he had perception of light; the vessels in the right were much contracted,

in the left they were almost obliterated. (*New York Med. Journ.*, June 30, 1894.)

Secondary Trephining for Fracture of the Skull.

—M. Legond brought forward the case of a child, seven years old, who was kicked on the right temple by a horse in August 1892. The skull was fractured. Four hours later there was severe vomiting, complete paralysis of the left arm and leg, rhythmical movements of the opposite side, and ptosis of the corresponding eyelid. This condition continued, along with epileptiform attacks. Two months later, his condition being unchanged, he was trephined over a depressed area behind the scar, and a small fragment of bone, 3 c. by 1 c., found embedded in the cerebral substance, was removed. Unfortunately an anterior branch of the middle meningeal artery was wounded, and had to be controlled by plugging with iodoform gauze; and on removal of this it was necessary to remove a piece of cortex, owing to adherence of the gauze. The wound was completely cicatrised in fifteen days. In three days after removal of the fragment symptoms subsided. At the present time, fifteen months after the operation, the child is in perfect health, without any trace of the injury. In the subsequent discussion M. Lucas Championnière suggested the use of catgut to plug the wound instead of iodoform gauze in cases of hæmorrhage; this is left behind and gradually absorbed. Children he considered bore this operation better than adults, in whom sclerosis supervened, especially when interference took place late. (*Progrès Médical*, No. 23, p. 416, 1894.)

Fibromyoma of the Bladder.—M. Vertioogen read a paper on a case of this nature. The patient was twenty-three years of age, worn in appearance, and had suffered for about five years from a very puzzling train of symptoms. These took the form of exceedingly painful spasmodic attacks, several of which sometimes would occur in a week. He complained chiefly of pain at the anus. The tenesmus was very severe, the pain, colicky in character, radiating through the abdomen, or consisting of painful calls to stool, with the passage of a very small quantity of fæces and abundant mucus. At times there was slight increase in micturition, whilst the urine was clear and normal. These attacks of pain subsided suddenly, leaving the patient entirely free. The first diagnosis made was enlargement of the prostate, and the patient was sent to Carlsbad for massage of the prostate. Subsequently he was treated as being the subject of enteritis, chronic colitis, hæmorrhoids, hysteria. Finally, after taking all the sedatives in the Pharmacopœia, he became a victim to morphinism. On being examined by the writer, along with M. Depage, a fluctuating tumour resembling a full bladder was

found in the pelvis by the bimanual method. The bladder was emptied by a catheter without any effect on the tumour. The conclusion then came to was that there was probably a large collection of thickened pus in the cavity of Retzius. On making an exploratory incision, an abdominal tumour, presenting the exact appearance of a uterine fibroid, and about the size of a child's head, was found occupying the cavity of the pelvis, and extending almost to the umbilicus. The tumour was firmly attached to the pelvis, and also was adherent to the intestines, especially on the right side, where the adherent appendix was mistaken for the ureter. The tumour was then fixed to the abdominal wall, with a view to treatment by electrolysis, as well as in the hope of freeing it from its rectal attachments. In spite of treatment by electrolysis, the tumour continued to increase in size, and owing to the severity of the pain and the increasing weakness of the patient its complete removal was carried out. At the bottom of the pelvis there was a thick pedicle of about three fingers' breadth, which was attached to and continuous with the wall of the bladder up to the tip of the vesiculæ seminales and the ridge between the prostate and the bladder. The pedicle was tied, and after the removal of the tumour the cavity of the pelvis was filled with a Mickulicz's tampon to control the excessive hæmorrhage. The operation scarcely occupied thirty minutes. Unfortunately gangrene of the wound set in, with decomposition of the discharges, and the patient died on the fourth day. On microscopical examination the tumour proved to be a myoma of the bladder wall, growing subperitoneally. M. Heger regarded the tumour as arising from the residual organ constituted in the male subject by the duct of Müller imperfectly atrophied, and therefore as being homologous with uterine myoma in the female. (*Journal de Méd. et Chir. et de Pharm. de la Soc. Roy. de Sci. Méd. et Nat. de Bruxelles*, p. 369, No. 24, 1894.)

Curare in Epilepsy.—M. Dobronravow recently treated successfully in the hospital at Saratov a case of status epilepticus with the hypodermic injection of six milligrammes of curare. The frequency of the fits was at once reduced. They only appeared after an interval of several hours, and disappeared finally on the following day. Large doses of bromide and iodide of potassium, of antipyrine, chloral hydrate, and borate of sodium had all been tried unsuccessfully. On the following day the patient only experienced slight fatigue in the muscles of the right side of the body, and an ill-defined painful sensation of the right knee. The subject was a lad of sixteen, who had been liable to fits since his birth; and they had increased in frequency with his growth. Before each fit there was an aura proceeding from the right

knee. Five injections of from six to seven and a half milligrammes of curare were practised at intervals of five days. There was no return of the fits; and the relief was maintained for several months. (*La Semaine Médicale*, p. 154, No. 39, 1894.)

Lesion in the Temporo-Sphenoidal region with Aphasia.—X. had an apoplectic attack in March 1891, without motor or sensory disorders, but with much word-deafness, and inequality of the pupils. These symptoms lasted five months. On December 20 he suddenly became aphasic. He could write his name and anything dictated to him, but could not, at the end of some minutes, recognise that which he had just written. In addition, there was dilatation of the right pupil and loss of the power of whistling and of raising the tip of the tongue. Recently he died of an empyema. The post-mortem examination revealed adhesions of the dura mater to the brain substance in the left temporo-occipital region, and a softening at this spot of the size of a two-franc piece, extending into the first and second temporo-sphenoidal convolutions, and as far as the horn of the lateral ventricle. (*Lyon Médical*, vol. i. p. 551, 1894.)

Rupture of Membranæ Tympani.—Dr. Welsford, of Dover, publishes the case of a gentleman of 60, in whom there occurred rupture of both tympanic membranes by cough. His hearing had been normal, and he had made no complaint of auditory trouble. During a severe fit of coughing he suddenly heard a loud explosion in both ears and became deaf. There was a slight hæmorrhage from both ears and on examination a large rent was discovered in each membrane. The deafness increased later, so as to become total, bone conduction being abolished. He complained of tinnitus; and a slight discharge was set up. This condition lasted until his death a few months later. In such cases hearing power as a rule is not completely abolished, and no doubt pathological changes were set up in the deeper structures by the accident. The ears were not syringed, but were frequently wiped out; plugs of antiseptic wool were inserted loosely in each external auditory meatus, and the patient was kept as much as possible at rest. (*Brit. Med. Journ.*, vol. ii. p. 68, 1894.)

Extracts from British and Foreign Journals.

Ménière's Disease.—Sir William B. Dalby contributes the following note on auditory vertigo. On one side must be placed those cases in which the external and middle ear are healthy; on the other side, those cases in which one or both of these two divisions of the ear are unhealthy. Until this is done there will remain endless confusion. The next point is that the term "Ménière's disease" must either be dismissed, or it must be clearly understood that it can be only applied to those cases in which there is no disease of the conducting media, and then only used to express a certain train of symptoms, which, beginning by vertigo, nausea, sweating, perhaps vomiting, tinnitus, and deafness on one side, continues by permanent deafness, a long, lasting, and varying tinnitus, a gradual subsidence in frequency and severity of vertigo and unsteadiness of gait. The words of Dr. Mackenzie—"In the great majority of cases, in my experience, some disease is found in the middle ear"—shows the necessity of this division and exclusion. His own experience not only accords with this remark, but it has become a daily matter in middle-ear disease to regard vertigo as so common a symptom that it ranks amongst other symptoms, such as pain, deafness, and tinnitus, although it is not so prominent. It is also true that at one time it is of no great importance, whilst at another it is a symptom of the gravest significance. Thus, when it accompanies long-continued and profuse discharge from a perforated membrane, it often marks the advent of cerebral complications. In the course of many affections of the middle ear it is not of great consequence. Some other cases can be put aside, such as those where the intelligence of the physician at once detects the state of affairs, as when Dr. Mackenzie writes: "I think one of the most practical points in warding off attacks is to keep your finger on the pulse—if one may use the expression—that is, to watch and keep down arterial tension. A dose of calomel, taken in such circumstances, patients have assured me, has averted attacks which they believe would

otherwise have occurred." The number of persons with obvious arterial tension, consequent vertigo, tinnitus, and deafness is very large indeed. They have been relieved by treatment and diet, but later on several have illustrated the cause of the symptoms by dying of apoplexy. When we severely put aside these cases of arterial tension and atheroma, as well as the middle-ear cases, we can discuss true auditory vertigo, which does not shorten life by a day. (*Brit. Med. Journ.*, p. 1012, vol. ii., 1894.)

The Temperature in Cerebral Apoplexy.—At the recent Congress of American Physicians and Surgeons, Dr. Dana read a paper on this subject. In hæmorrhage there was generally a rise of 1° or 2° in the rectal temperature on the first day, whilst in embolism or thrombosis there was no such rise. The fever was slight—from 101° to 103° ; a rise to 106° was probably due to pneumonia or other complication. Unilateral disturbances of temperature after an apoplectic stroke were sometimes seen. In seven cases of acute cerebral softening and in three of cerebral hæmorrhage, in all of which necropsies were made, it was found that in the grave massive hæmorrhages the affected side showed a higher temperature than the other; in the cases of acute softening there was no difference noticed. The sudden tearing of the brain by the hæmorrhage caused more disturbance than the gradual process of softening. A preliminary fall of temperature in apoplexy was exceedingly rare. The effect of the special localisation of the clots or the softened areas upon the temperature changes was interesting, especially in relation to the question of the position of the thermic centres. He believed that it could not be definitely stated that the thermic centres were situated in the brain, but that the temperature was likely to rise after lesions of the pons and after tearing wounds of the cortex of the brain. (*The Medical News*, Philadelphia, June 9, 1894.)

Chloralose.—Dr. Chambard has been making trial of chloralose on several lunatics under his care. Chloralose appears to be a body formed by the union of chloral and sugar; and by experiments on frogs Dr. Chambard points out that an overdose kills by paralysis of respiration, after first abolishing the motor powers. He finds clinically that in doses of about a gramme the drug is a certain hypnotic, but that the onset of sleep varies in its manifestations—sometimes it is gradual, sometimes abrupt, and sometimes it is preceded by strange conditions of muscular tremor, aphasia, and vertigo. Further, these modes of onset vary in the same patient from day to day. (*Revue de Médecine*, vol. i. p. 306, 1894.)

Treatment of Whooping Cough.—Putting to the test the question of the bacterial origin of whooping cough, M. Raubitschek lately treated several cases with corrosive sublimate solution. He used a strength of 1 in 1,000, and applied it to the tonsils, uvula, soft palate, epiglottis, and adjacent membrane, either with a brush or with a pledget of cotton wool. Severe cases require to be so treated daily; milder cases on alternate days. There is, in his opinion, no risk of accidental poisoning. The condition was usually better on the second or at the latest on the third day, as shown by a diminution in the frequency and violence of the fits of coughing. A child treated at the onset of the convulsive stage would be well after four or five applications. (*Lyon Médical*, No. 26, p. 304, 1894.)

Large Doses of Strychnine in Diseases of the Chest.—In asthma and chronic bronchitis, in catarrhal pneumonia and phthisis, also in diseases of the heart, especially in those which depend upon a nervous disturbance, Mays has made use of strychnine in large doses with the best results. The author attributes the cause of this favourable action to an effect on the body weight and the blood-formation, and to a specific influence on the nervous system. The dose generally begins with two milligrammes of strychnine, and afterwards it is increased somewhat every eight days until the individual maximum is attained. In diseases of the heart strychnine in large doses is not a rival of digitalis, but each remedy has its own sphere of operation, the latter more in muscular, the former in nervous disturbances. (*Centrblt. f. innere Med.*, No. 9, 1894.)

Icterus Gravis.—M. Hanot, at a meeting of the Société Médicale des Hôpitaux, drew attention to two cases of *icterus gravis* with subnormal temperature, in one of which it was possible to demonstrate the bacillus coli. During life the existence of this bacillus was demonstrated in the blood of the liver, and also in the blood drawn from a vein in the bend of the elbow. The second case was probably one of an *icterus gravis* with subnormal temperature, in which one could detect the staphylococcus aureus; during life cultures of the blood did not yield the bacillus coli. He considered it an evident confirmation of the part played by the bacillus in afebrile *icterus gravis*. In reply to a question as to similar researches in cases of cirrhosis, M. Hanot said that probably in afebrile cases the bacillus could be demonstrated, but the researches were not concluded. He had also seen severe hæmorrhages, both subcutaneous and otherwise, in these cases; there seemed to be no connexion between the gravity of the hepatic affection and the hæmorrhage. (*Progrès Médical*, No. 19, p. 343, 1894.)

Infectious Pericarditis.—With reference to the commencement of an infectious pericarditis, M. Championnière says that three forms may be differentiated. In the first form it begins acutely; the fever when it sets in is high, and the disease reaches its highest point in two or three days. Then there is a subacute form; the fever has not a continuously high character, but generally shows numerous remissions, so that it is not impossible to confound it with rheumatism or even tuberculosis. The disease is first fully established in six or seven days. Finally, there occur cases in which the development of the disease is very slow and frequently intermittent; these intermissions of the fever curve may present a deceptive appearance of malaria. The course of the disease is also various. Over against cases running a course with continuously high fever stand those in which, in addition to the continued pyrexia, there occur paroxysmal exacerbations, and others in which, during the whole course of the disease, occasional remissions are to be observed. The course of an infectious pericarditis may vary between 13 and 150 days, therefore a connexion with the ætiology of the disease is not recognisable. Treatment consists in the exhibition of milk, alcohol in large doses, and salicylic acid—one and a half to two grammes daily; after three or four days, half a gramme. (*Centrbll. f. innere Med.*, No. 14, 1894.)

Injection of a Glycerine Extract of the Kidney Substance in Albuminuria.—MM. Teissier and Frenkel communicated a research on this subject undertaken at the request of Professor Brown-Séquard, to determine as exactly as possible the influence of the kidney extract on the chief organic functions, and particularly on the excretion of toxic bodies in the urine. The experiments were carried out with the extract of the kidney of the sheep, which was carefully pounded and macerated in water for twenty-four hours in a 10 per cent. solution of glycerine in water. 20 cm. of this solution per kilogramme of body weight, injected either subcutaneously or into the veins, caused neither accident nor trouble with the urine; five times the quantity, on the other hand, rapidly caused death, with intense dyspnoea, nystagmus, and convulsions. At first only 2 cm. were injected, and later on the same quantity night and morning was used in the clinical investigation. Two patients were chosen. The one was the subject of typical interstitial nephritis with œdema, cardiac trouble, and the symptoms generally attributed to deficient urinary excretion; the other presented symptomatic albuminuria, the preliminary feature of general tuberculosis. These two patients were placed on a purely milk diet. For three days a complete analysis of the

urine was made (urea, phosphates, chlorides, &c.); the toxicity was determined according to the method of Professor Bouchard; the density of the blood was determined; and the red and white corpuscles estimated. Thus the nutritive balance of each patient was determined, taking the mean of the figures obtained during the three days' examination. This was also determined for five days while the subcutaneous injection of the extract was carried out, and then for the three days subsequently. There was no change in the quality of urine passed; no diuretic nor antidiuretic action—a fact which had been previously determined by experiments on animals; no apparent modification either in the density or in the globular composition of the blood; but there was a slight increase in the arterial pressure (2 to 3 cm. with the sphygmomanometer of Potain). On the other hand, there was a very sensible modification both of the chemical composition of the urine, and especially of its toxic power. In the case of interstitial nephritis there was noted a slight increase of the urea—from 17 grammes to 20 grammes (third period); no diminution of the chlorides; but a marked increase of the phosphates, rising from 0·38 gramme to 0·86 gramme and 1·23 grammes for twenty-four hours; a slight increase in the urates deposited; and, lastly, an increase of the coefficient of urotoxicity, which rose from 0·205 to 0·252, without change in the quantity of albumen. "But the most interesting fact to note is the production of myosis, demonstrated with the urines collected from the second day of the period of the injections and with 60 cm. only; whilst in the premonitory stage this phenomenon, which measures in some fashion the degree of the urinary toxicity, was not produced or scarcely marked with 340 cm." In the second case, the results only varied in detail: increase in the urine voided, from 20·75 grammes to 26 grammes; chlorides from 5·70 grammes to 9·80 grammes; no change in the phosphates; but, most interesting of all to relate, disappearance of the albumen during injection in spite of an increase of temperature, and its reappearance when the use of the injection was suspended. As in the former case, there was an increase of the urotoxic coefficient from ·383—·474 to ·540, ·569, ·521. The myosis, owing to urinary intoxication, was more readily produced. As soon as 20 cm. were introduced into a vein, the pupil at once contracted markedly. From the experiments the augmented power of elimination of toxic substances was very easily shown. Probably the increase of the urotoxic coefficient was due to the elimination of the injected material. The probable explanation is either an increase of oxidation of the waste products (increase of the urea), or a stimulation of the renal parenchyma, which perhaps requires an integrity of the renal structure for the elaboration and

excretion of the toxic bodies. The feelings of relief experienced by the patients, and the harmlessness of the injections, are believed to justify their use in nephritis. (*Lyon Médical*, No. 17, p. 578, 1894.)

Cutaneous Absorption of Guaiacol.—In an important paper Drs. G. Linossier and Lamois give the results of a research on this subject. When given by inhalation a very small amount of guaiacol appears in the urine—about one centigramme to a thousand grammes inhaled. When given by the skin the amount appearing in the urine is nine times as much. The method of applying the drug was to place it on a bandage, and apply this to the skin of the abdomen just as mercury is exhibited to children. The conclusions arrived at were as follows: (1) Guaiacol is absorbed by the skin. (2) Absorption is very rapid: a quarter of an hour after an application the drug could be found in the urine. It attained its maximum amount from between an hour and a half to four hours after bandaging, and the urine was not free from the drug until twenty-four hours were passed. (3) In the twenty-four hours, after an application of four grammes of guaiacol, 2.02 gms. were obtained from the urine, and 3.03 gms. after an application of 10 grammes to the skin. (4) It is therefore possible to saturate a patient by the skin with the drug without having recourse to absorption by the stomach or subcutaneous injection. (*Lyon Médical*, vol i. p. 436, 1894.)

Prescriptions.

FOR PSORIASIS.

R Ammonii Carbonatis gr. iv.
Potassii Acetatis gr. xxv.
Liquoris Arsenicalis ℥ iv.
Syrupi Aurantii Floris ℥ij.
Aquæ Menthæ Piperitæ ad ℥ss.
Misce et fiat mistura.

A tablespoonful in half a wineglass of water three times daily after meals.

FOR SPASMODIC ASTHMA.

R Tincturæ Lobeliæ Ætheræ ℥ xv.
Spiritus Ætheris ℥ xx.
Tincturæ Chloroformi Compositæ ℥ v.
Aquæ Camphoræ ad ℥j.
Misce et fiat mistura.

Two tablespoonfuls to be taken when the breathing is difficult.

A DIURETIC MIXTURE.

R Potassii Acetatis gr. xxx.
Potassii Bicarbonatis gr. xv.
Spiritus Juniperi ℥ xxx.
Tincturæ Scillæ ℥ vij.
Decocti Scoparii ad ℥j.
Misce et fiat mistura.

Two tablespoonfuls to be taken every six hours.

FOR CHRONIC LARYNGITIS.

R Olei Pini Sylvestris ℥ xv.
Olei Cassiæ ℥ iij.
Magnesiæ Carbonatis levis gr. xx.
Aquæ ℥j.
Misce et fiat vapor.

A teaspoonful to be added to a pint of water at 140° F. for each inhalation.

FOR URTICARIA.

Vaseline 30 grammes.
Oxide of Zinc 3 to 6 grammes.
Menthol or Phenol 30 to 60 centigrams.
Make an Ointment, to be applied to the wheals.

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Department of Public Health.

NOTES ON SOME PAST EPIDEMICS OF PLAGUE IN RUSSIA.

BY FRANK CLEMOW, M.D., D.P.H.

THE recent outbreak of plague in Hong-Kong may perhaps lend the following notes an interest they could not otherwise claim.

The epidemic has served to remind the world that the plague of the middle ages is not extinct, and that there are still places where the infection may find ample fuel to feed its flames.

With the exception of England, no western country is more closely concerned in the Chinese outbreak than Russia. The two empires of China and Russia have some thousands of miles of common frontier. Both have a series of ports on the Pacific, with intercommunication between them. Russia, moreover, has fresh in her memory an epidemic of plague which occurred within her borders so recently as 1878. The Vetlianka epidemic, and the alarm it created throughout the land, will not be readily forgotten. I propose here briefly to recount some of the facts connected with the past history of plague in Russia.

A mere recital of the numberless dates at which the disease has prevailed in this country would serve but little purpose, and it will save time and space to pass very rapidly over the earlier records. They are to be found mostly in the great chronicles of Nestor and Nikon, and in the Novgorod, Pskof, and Tsarstvennaia, or Royal, chronicles.

The earliest-mentioned epidemic of plague in Russia is ascribed to the year 1090, when, in the course of two weeks, some 7,000 persons died of the disease in Kief. In the twelfth and thirteenth centuries many references may be found to the occurrence of "plague" (which may be taken in the general or the specific sense) in various parts of the country. These pestilences varied greatly in severity and in the extent of country over which they prevailed. Whether all or any of them were instances of the true *Pestis bubonica* would not now be easy to determine, and it is perhaps bootless to inquire. It is certain that they all pale their ineffectual fires before the terrible epidemic of the middle of the fourteenth century.

The Black Death, which decimated England and most other countries of the west in 1348 and 1349, did not reach Russia until 1352. It was not imported, as might have been anticipated, from the east or south, but from the west. It first attacked Pskof and Novgorod,¹ and ultimately seems to have overspread the entire land. The chroniclers are brief but eloquent in their description of its ravages. In Kief, Tchernigof, and Smolensk more than half the people died. In Glukhof and Bielsözero, according to Nikon, not a soul was left alive.

The modern Russian historian Karamzin devotes only a few short pages of his great history to this pestilence, but it is evident that it was a national disaster of unequalled magnitude; and if its impress upon the history and welfare of the country was less deep than was that of the same Black Death in other countries, this may perhaps be explained by the difference of conditions between Russia and other countries at that time. In a land where death and disaster were for ever threatening the unhappy people, the added horrors of a pestilence may have stood out in less striking relief than in the happier and more settled countries of the west. The fourteenth century has been described as the gloomiest of all the gloomy periods in the early history of Russia. There was internal and external

¹ It has to be noted that many parts of Russia, as it now exists, were attacked by the Black Death much earlier than either Pskof or Novgorod. As early as 1346 plague was epidemic on the shores of the Caspian Sea, in the Crimea, in Armenia, at the mouth of the Don, at Astrakhan, and in many other places that have since come under the sway of the Tsar. (Karamzin, *History of the Russian Empire*, vol. iv. pp. 277 et seq.)

warfare. The fierce struggles of the separate princes for the Grand Princedom only ceased, if they ceased at all, to give way to the worse horrors of a Tartar invasion. History is more eloquent upon the ravages of the Mongol hordes than upon those of the Black Death, but, if the number of victims be taken as the standard, it is easy to see which was the greater disaster. The plague possessed a death-dealing power that a Tchinghiz Khan or a Tamerlane might have envied. Where they slew thousands, it carried off millions. Among its victims in Russia were the reigning Grand Prince of Moscow, Simeon the Proud, his brother Andrei, and all his seven children.

It is not quite clear how long this great pestilence lasted; but the infection seems to have lingered on until 1360, when there was a renewed outbreak of the disease in Novgorod, Pskof, Tver, Kazan, Vladimir, and other towns. From that time until the end of the fourteenth century, and all through the succeeding century, plague was constantly reappearing in some part of the country.

In the sixteenth and seventeenth centuries frequent mention may also be found of epidemics of plague within the Russian borders. Few of these outbreaks, however, appear to possess sufficient importance or interest to permit, in this brief article, more detailed notice. The case is different with those of the seventeenth century.

The earlier epidemics of last century are of interest from an historical standpoint. Peter the Great was on the throne for the first quarter of the century, and he met each approach of the disease in that period with characteristic vigour. The plague was an enemy to be put down with the strong arm. The strictest military cordon was drawn round an infected district, and it was death to any one who attempted to pass the barriers. Gallows were erected on all the high roads, and the delinquent who was caught trying to escape from the proscribed circle was hanged out of hand. A house in which any one had died from the plague was ordered to be burned to the ground with all that it contained, even although this included horses and cattle. Official letters, brought by couriers from an infected district, were first passed over a fire, were then copied three times, and only the third copy was delivered to the authorities.

The best commentary upon the efficacy of these measures is found in the fact that in 1709 some 100,000 persons died of plague in Russia, and that at the taking of Riga in 1710 the disease carried off 60,000 victims.

The later epidemics of last century have more than an historical interest. So full and detailed a clinical account of the plague in Moscow in 1770-72 has been preserved that, in this epidemic at least, the purely medical interest outweighs the historic. The outbreak is not without historic importance. It is even thought worthy of mention by the general historian, whose muse has passed over in silence other equally fatal epidemics. This distinction it owes to the part played in its extinction by Count Gregory Orlof, the favourite of Catharine. It would be idle now to inquire whether the decline of the epidemic, which dated from Orlof's arrival in Moscow, was due to his or any one else's action, or merely to the well-known tendency of all epidemics to die out after a longer or shorter time. It is certain that the extinction of the plague was at the time ascribed entirely to the Count, and he received in consequence numberless signs of popular and imperial favour. The medical historian may leave him in undisturbed possession of his honours, and pass to the more grateful task of giving praise where it may be given ungrudgingly and without question. Such praise there can be no hesitation in awarding to the author of the clinical account of the plague already referred to.

The origin of this account was as follows. One of the two commissions found by Orlof on his arrival in Moscow instructed one of its members: first, to collect all available documentary evidence with regard to the epidemic; secondly, to describe fully all the signs and symptoms of the disease; and, thirdly, to write an historical account of the rise, course, and decline of the epidemic in Moscow. This task was entrusted to Dr. Athanasius Shafonski, and the result of his labours was published, by imperial command, in 1775. The book is a rarity even in Russia,¹ but it contains such a valuable account of the plague,

¹ For the facts here given with regard to Shafonski and his book I am indebted entirely to an interesting paper by Dr. Monastyrski, in the *Protocols of the Society of Russian Physicians in St. Petersburg*. The paper was read at the Society's meeting on January 11 (23), 1879.

both from the clinical and the epidemiological points of view that I may be pardoned for dwelling somewhat upon it and its author.

Shafonski was senior physician to the largest of the Moscow hospitals. He was the first to diagnose the early cases of the epidemic as true cases of *Pestis bubonica*, when few were ready to admit such a possibility. He is said to have been untiring and unflinching in his work among the sick through all the panic and chaos caused by the pestilence. His story of the epidemic and the clinical picture he draws of the disease are deserving of more than the brief *résumé* that is alone possible in the present article.

One of the most striking facts in the history of the epidemic is the slowness with which the infection seemed to gain a hold in Moscow. It was, there is little doubt, introduced by the Turkish prisoners taken in one of Catharine's numberless campaigns against the Turks. But though the first deaths from plague occurred among the prisoners in Moscow in October 1770, it was not until the following summer that the disease became at all widely epidemic. In November a Russian officer, who had come from the seat of war, died of plague and was secretly buried. The hospital physician who attended him also died, after only three days' illness, characterised by "fever and black spots." A few other cases also occurred in the city in November, but they did not attract any particular attention. From December 17 a rapid and mortal illness began to attack the attendants at Shafonski's hospital (to which the physician just mentioned was also attached). Shafonski at once recognised the disease as plague, and reported the case to the authorities. On December 22 a military guard was placed round the hospital with its thousand occupants, and all communication with the outside world was cut off from that date until March 1 of the following year. It was doubtless in that time that Shafonski gained his minute clinical knowledge of the plague. In these nine weeks twenty-seven of the hospital attendants sickened, and only five recovered.

In the meantime the infection was making headway in the city. Some 130 deaths occurred in the Great Cloth Fair in January and February (1771). The infection was brought to

the Fair by a woman who came from a house in the town, every other occupant of which had died from the plague. The unfortunate woman died herself, and so did all the remaining inhabitants of the house she stayed in in the Fair. In March the Fair was cleared out and closed. The healthy were removed to two empty factories, and the sick to the Monastery of St. Nicholas. As only 730 persons, sick and well, were to be found, while the usual population of the Fair was 2,500, it is clear that many hundreds had already voluntarily fled to other parts of the city. It was in this way that the disease was spread.

As the summer advanced the plague became more and more widely epidemic in Moscow. In April there were 778 recorded deaths; in May, 878; in June, 1,099; in July, 1,708; in August, 7,268; and in September the recorded mortality reached the high figure of 21,401. The numbers of unrecorded deaths, could they have been ascertained, would have swelled these figures still further. But panic, disorder, and distrust of the medical authorities, culminating in three days of unrestrained riot (from September 15th to 18th), caused innumerable deaths to escape record. The decline of the epidemic followed a line the exact reverse of its rise: that is to say, there was first a rapid fall in the number of deaths, and then a prolonged period in which they slowly diminished until the plague was finally extinguished. Thus in October 1771, there were 17,561 recorded deaths; in November, 5,235; in December only 805. But it was not until the 1st of December, 1772, that Moscow was officially declared to be free of the plague. In the whole course of this epidemic some 130,000 persons are thought to have lost their lives.

Such, in brief outline, was the history of this great pestilence. The following, in equally brief outline, is the clinical picture of the disease as described by a contemporary observer; of necessity much condensed, but given, wherever possible, in the author's own words.

Shafonski defines the plague as a disease *sui generis*, "more dangerous than all other diseases, highly contagious and producing external signs upon the body, viz. buboes, carbuncles, and large and small black spots (petechiæ); for the most part ending in death." Its signs and symptoms were the following:—

1. *Pain in the head and heaviness.* "In some the pain is cruel, in others it is not so great; usually the eyes are dim, in some red and swollen, while some have the appearance of drunken men." This pain in the head was not absent in a single case, and was so prominent a symptom that "many of the common people called it the *head disease*."

2. "*Chill and shivering*, such as is found in fevers." In some this symptom was not marked, and in some, particularly in the severe cases, there was no rigor.

3. "After the chill quickly follows *heat*, which in many is felt most internally, and in many both externally and internally, and lasts as in any other cruel fever; the tongue is at the same time dry in some, in some yellow and as though covered with glue, while in some it differs little from the natural tongue."

4. *Nausea* and desire to vomit, and in many actual *vomiting*. This was a very frequent symptom, which sometimes came on with the rigor and was sometimes delayed a little. "Vomiting is generally severe if the person who becomes infected shall eat soon after, or has eaten so recently before becoming infected that the stomach has not had time to digest the food; but even those who have eaten nothing are no less prone to vomit, and many throw up a green or yellow fluid."

5. *Anxiety, distress, fear, and despair*, "so that some from the very beginning have little or no hope for their life."

6. "The most important sign and symptom in the infection is a great and rapidly developing *weakness* of the whole body and all the members." This extreme weakness sometimes ushered in the attack. It was often accompanied by trembling of the hands and feet, so that the patient could not stand, and sometimes by fainting. Suddenly developing weakness and trembling of the limbs, without any other symptom, were deemed sufficient to arouse suspicion. On the other hand there were a few persons who passed through an attack of the plague without any marked weakness, and without even taking to their beds.

7. *Weakness of the voice*, ascribed by the author to weakness of the tongue. "In some the speech is unintelligible and disordered, as though the tongue were frozen or bitten, or like the

speech of a drunken man ; many are either altogether unable to put out their tongue or show it with difficulty."

8. *Diarrhœa* was a frequent symptom. In some cases it was so severe that no remedy was able to check it, and it was in many the direct cause of death.

9. *Hæmorrhage*, generally from the nose or throat, and frequently fatal.

10. *Delirium*, coming on with the invasion or later. "In some there is such a *frenzy* that it is sometimes needful to bind the person ; but this is very rare."

11. "In some is observed a *desire for food*, particularly when they suddenly feel themselves better ; this symptom, however hopeful it may seem, generally foretells a rapid end. . . . It often happens that those who are ill of the plague just before death have no sufferings or signs of the end, but die almost without any visible movement. This occurrence deceived many physicians at the beginning of the Moscow Plague, who found the sick without notable weakness and in no visible danger, but in a short time these same persons were *in extremis* and died. Many just before the end talked considerably and even moved about, so that death seemed to be far from them, but suddenly and without any change they died."

12. "In many it is noticed that they *sleep* through almost the whole course of the illness and die with scarcely any motion of the body ; and it is generally observed that these have a grievous and despairing look."

These were the general symptoms of plague as seen in Moscow. The local signs were the following :—

1. "*Black*, or rather, *livid spots*, called *marushki* (petechiæ), which are found on all parts of the body, but particularly on the breasts, the neck, the arms and the belly ; the size of a poppy-seed or of a pea, or in some larger. . . . These spots appear in some soon after the onset of fever ; and in many the body is as though covered with the bites of fleas, which grow in size from hour to hour ; in many they appear on the second day or later, and in some after death and do not disappear from the dead body."

2. "The most important and decisive external sign of the

plague is a *black boil*, called a *carbuncle* (*carbunculus*, *anthrax*). It may appear on any part of the body, without exception, and always begins with a burning pain, as though the body had been burnt, after which there soon appears at that spot a livid blister, filled with a thin fluid. At first many from ignorance, and others purposely, ascribe these blisters to an actual burn, especially those who have steamed themselves in the baths. The bladder is at first very small, like an ordinary pimple, but from hour to hour becoming larger and more prominent, and around it the body becomes red; in some it rises in the course of a day or more, in some in a few hours, and then bursts, or the patient himself, lying in fever, crushes it. As soon as the blister breaks and the fluid escapes, then under the cuticle a black spot, as though burnt, level with the surface of the body, is presented to the eye; in some the size of a *polushka*,¹ and in some as big as the palm of the hand. This sign, which is like a St. Anthony's Fire turned into a black and burnt spot, is called from its blackness a carbuncle; the burnt part is hard, extends deeply, and has no mature pus and no feeling, so that on cutting it with a knife, or applying to it the most acrid drugs, there is no pain whatever, only the living parts around feeling it. Not a single part of the body is exempt from these carbuncles; in many they occur on the face and, because of the gravity of this position, there is then little hope of recovery. In many there is only one, in others there are more than one or two on different parts of the body."

3. "Swellings in different glandular localities, or tumours, called *Buboes*, which are usually in the groins, less often under the arms, and still less often behind the ears. They come at different times; in some on the first day of the fever and in others on the second or third day, while in some nothing is seen save fever for as much as ten days; but in a few, on the other hand, the pest begins with buboes alone, without visible fever or other symptoms." The other symptoms usually came on sooner or later, though a few escaped with only the buboes. After describing the points in which these buboes differed from

¹ *Polushka*, a minute obsolete coin, of the value of one-quarter of a copeck, or one-sixteenth of a penny.

those of venereal disease, Shafonski adds that they sometimes lasted only two days. "In many," he continues, "it is long before they can be brought to an abscess, as the fever passes before the bubo is mature; and if it is already so mature that it is time to cut it, then, although on opening it the ripest matter flows out, yet generally the gland is not changed into pure matter, but comes away like thick tallow; and if the gland do not wholly come away, then the wound is long in healing and sometimes leaves a hole or fistula. Buboes under the arms also heal slowly." If the bubo was behind the ear or in the neck the patient almost always died.

4. "*Wheals (vibices)* and *blue spots*, large and small, as though the body had been beaten. Although rarer than the former signs yet these sometimes occur, from blood being poured out under the skin; mostly on the back and legs; generally before death, but after it in those who die rapidly."

Neither age, sex, nor social condition was any safeguard against the infection. Some persons, it is true, though in close and prolonged proximity with the sick, escaped an attack, but such instances were very rare. "In general it was observed that the young sickened more readily than the old, women than men, those of the moist constitution than those of the dry, and the lower classes than the well-to-do." Relapses were extremely rare.

Between the epidemic of 1770-72 and the outbreak on the lower reaches of the Volga in 1878 plague occurred rarely and with no great severity on Russian soil. The Vetlianka epidemic, though small and quite localised, derives an importance from the fact that it occurred only sixteen years ago, and that it was a reappearance in Europe of a disease from which the Continent had for many years been free.

The origin of the epidemic has never been quite cleared up. It is worthy of note that it coincided, like so many of its predecessors, with a war between Russia and Turkey. The late Professor Botkin was of opinion that plague was present in the army of the Caucasus in the autumn of 1877, for Count Loris Melikof wrote at that time that a great mortality was prevailing among the troops from a disease looked upon as

"typhus fever with buboes," and that 75 or 80 per cent. of the cases proved fatal. The fact that this disease was not spread widely throughout Russia when the troops were dispersed Botkin attributed to a supposed immunity of the country to the infection of plague. An indication of the presence of the infection in a mild form, he thought, might be found in a tendency, noted at the time, to a prevalence of swollen glands in St. Petersburg and other places. However this may be, the fact remains that, with the exception of some suspicious cases near Astrakhan in 1877, and one or two doubtful cases in the governments of Nijni Novgorod, Riazan, and Taurida, and in the towns of Odessa and St. Petersburg,¹ the actual outbreak of plague was confined to some half-dozen Cossack *stanitzas*, or villages, in the government of Astrakhan and lying on either bank of the Volga.

The first case occurred in Vetlianka, on October 3rd, 1878, when an old man is said to have fallen sick shortly after opening a packet which he had received from his son in Asiatic Turkey. The disease first spread in his household and then to other households. Such at least is the account of the origin of the epidemic given by a medical authority in Astrakhan. Slightly different accounts are given by other authorities, but all agree that the first cases occurred in the house of this old Cossack, whose name was Agapon Kharitonof, and who, if not the first to sicken, did ultimately catch the plague and died of it. It still remains an undecided question whether the packet sent from Turkey was or was not the means of bringing the disease to Russia. Space will not permit here of a detailed recital of the further

¹ A detailed account of these cases is given by Dr. M. I. Galanin in a valuable series of articles on the "Bubo Plague" which have recently appeared in the *Messenger of General Hygiene*, the organ of the Russian Medical Department. The suspicious case in St. Petersburg, which Botkin regarded as one of true plague, may be found fully recorded and discussed in the Protocols of the Society of Russian Physicians, already quoted. Some reflection may also there be found of the intense excitement which this case aroused in the capital. The popular dissatisfaction at Botkin's honest expression of opinion as to the nature of the case was answered by a special meeting of the Society and the presentation to Botkin of enthusiastic addresses of confidence, both by the Society and by the general medical faculty in St. Petersburg.

course of the epidemic. The following table gives the total statistical results:—

Name of Village.	Duration of Epidemic.	Population.	Cases.	Deaths.
Vetlianka	17th Oct., 1878–27th May, 1879	1,887 (?)	453	372
Prishib	5th–24th Dec., 1878	3,523	16	16
Staritzkoé	15th Dec., 1878–5th Jan., 1879	2,155	8	8
Selitrianoé	19th Dec., 1878–19th Jan., 1879	2,499	32	30
Udatchnoé	13th Dec., 1878–18th Jan., 1879	860	2	2
Michaelovskoé..	15th Dec., 1878–7th Jan., 1879	668	4	3
Totals of cases and deaths			515	431 ¹

The high mortality of plague is clearly brought out by these figures, nearly 84 per cent. of the total number of cases having proved fatal. The same fact and also the extreme infectiousness of the disease were illustrated by the deaths among the medical men who went to combat the epidemic. Of the first three physicians (Drs. Koch, Morozof, and Grigorief) who went to Vetlianka every one caught the plague and died of it, and the same fate befell six of the *feldschers*, or trained hospital attendants, who went with them. It is owing to this fact that so little is accurately known of the history and symptomatology of the early period of the epidemic. The clinical descriptions that remain apply only to the later and much less virulent phases of the disease.

With regard to the symptoms it may be noted that there were the same pain in the head, the same onset of fever, the same weakness, vomiting of blood, loss of voice, delirium and other symptoms that characterised the Moscow epidemic of last century. In addition there were observed, among other symptoms, enlargement of the spleen and liver, rise of temperature to 42°C., suppression of urine, disappearance of pulse and

¹ Table given in Prof. Zuber's Report upon the epidemic and quoted by Dr. Galanin in the articles referred to in the last footnote. Accounts of the epidemic may be found in a Supplement to the Ninth Annual Report of the Local Government Board (1879–80), written by Dr. Buchanan, and in the various reports of the delegates to the international commission formed to investigate the outbreak. I much regret that I have not been able to refer to these documents. The materials for the brief notes here given concerning this epidemic have been obtained from Russian sources already named.

coma before death. The external signs appear to have been limited to petechial rashes and enlargement of the lymphatic glands, followed by suppuration and sloughing.

The epidemic was extinct in five of the six Cossack villages in the month of January, [1879; and only in Vetlianka did it linger on until May. From that time until the present Russia has been free from the plague.

DIARRHŒA AND DYSENTERY IN RELATION TO THE WATER-SUPPLY OF MELBOURNE.

THE occurrence of the localised diarrhœa and dysentery in question was the subject last year of a voluminous report by Dr. D. Astley Gresswell, Chief Health Officer to the Government of Victoria, and its main interest lies in the circumstances under which the disease was localised, as also in the completeness of the proof that the outbreak was due to a local and temporary pollution of a portion of the water-supply delivered to the city of Melbourne. The occurrence took place in a block of dwellings which is bounded by certain streets in which lie the water-mains, and considerable pains are taken in the official report to show that this block stood practically alone as regards the distribution of the disease under investigation and that the mischief was induced by admission of foul matters into the local mains. The diarrhœa and dysentery commenced towards the close of November, 1892, and when a first limited inquiry was made at twenty-seven of the dwellings in question it was found that there had been diarrhœa in twenty-one of them, that every person on some of the premises had been affected within a few hours one of another, that the disease lasted two or more days, and that it was associated with a visible change in the quality of the water-supply. The cases are dealt with in much detail, and care is taken to show that any occurrence of a like sort elsewhere in the city was only trivial and occasional, and that in point of character and simultaneity of attack the outbreak in the "block" stood practically alone. And this was

the more remarkable because the block consisted of a number of streets and that the simultaneous attacks were widely separated over various parts of the block.

Dealing with the causation of the outbreak, Dr. Gresswell is able to eliminate the question of the transmission of the disease from person to person, and also that of dissemination through the agency of the atmosphere, that of drainage and a number of other possible causes including food supplies, &c. And, as the result of his process of exclusion, he is driven to conclude that it must have been due to the water-supply which is derived from the Yan Yean system. There was, indeed, at an early stage suspicion as to this, for it was found amongst other things that in given households, for example, the only members who escaped were those who never used any water that had not been previously boiled. Of 185 premises in the block, more or less information was procurable at 144. Of these, 140 took the Yan Yean water from the taps, and all the attacks occurred amongst these 140. At fifty-three of the houses the water had been habitually boiled before use, and only one or 1·8 per cent. was invaded; at sixty-eight it had been regularly taken raw and unboiled, and here the percentage attacked was 50. At five houses the water was filtered; in these there was only one sufferer, and he had used the water in its uncooked state. The facts, indeed, up to this point can leave but little if any doubt in the minds of those accustomed to etiological enquiry that the water was almost certainly the cause of the disease; and Dr. Gresswell, having arrived at the same conclusion, next proceeds to deal with the conditions which might have led to the accidental pollution of the water.

To follow the report in all its reasonings as to this would practically involve reproduction of the document with its tables, diagrams, &c.; and we must therefore at once say that, judging by the careful experiments made, we are bound to accept Dr. Gresswell's view that, owing to reduction of water-pressure within the mains, such as must have taken place when certain operations were performed immediately antecedent to the outbreak, filth made its way into those mains through the medium of plugs so contrived as to admit air and other matters when the pressure is reduced below a certain point. The story indeed,

from this point of view, has nothing novel in it. Ball-plug have again and again served to admit foul air into mains in this country and elsewhere, but we think that the circumstances under which the entrance of foul matters into the mains is at times rendered about as certain as anything can be certain, are nowhere paralleled by the arrangements which were in force in Melbourne when this outbreak took place. After detailing some of these circumstances as regards the section of the water-service here in question, Dr. Gresswell, dealing first with certain operations which led to diminution of pressure in the mains on 23rd of November, 1892, and to the repetition of similar operations on January 11th, 1893, writes as follows :—

“When the water-pressure is reduced in a closed section of pipes, falling as was the case with the section which has been considered above—whether the reduction be due to letting out of the water quickly by plug-staking, or more slowly by householders drawing what water they may be able to get at the lower levels—a powerful suction pressure (generally termed negative or minus pressure) is necessarily exerted at all openings into the mains, their branches, and the service-pipes. Such openings in this metropolis are, besides the fire-plug openings, those of service-pipes laid on direct, without intermediate service-box, to urinals, to drains, and such like appliances, also leaks in the mains or in the service-pipes, which it should be stated are allowed to lie without any covering whatever in the sewage of street gutters, or more frequently at an altogether insufficient depth beneath the pavement of such gutters, and to lie immediately alongside the foulest of open pervious drains in soil thoroughly saturated with putrid filth. And here it may be observed that leakages in very many instances are extremely slow of development, and that even when discovered they are not necessarily attended to at once. Of course it is impossible to say what number of these openings there may be in the course of any particular section of pipes, but that they are numerous in the metropolitan area there can be doubt. Hence, when the pressure on the water is allowed to fall, it is not merely from foul fire-plug boxes that danger of contamination is to be apprehended. In this metropolis, where, as just stated, water is laid on direct even to

urinals (so that the supply pipe may actually dip into the urine of a blocked urinal), to drains, boilers, and the like, and water pipes are laid in an improper manner in street gutters, alongside of foul open drains, and even under closet middensteads, there is danger from a variety of sources. And the question as to whether the water-pressure is suddenly reduced by fire-plug staking or more slowly reduced by the householders, when drawing water for domestic purposes in a closed section of pipes falling as the section in 'the block' falls, is one which does not necessarily affect the amount of contaminating matters that may enter that section.

"It must then, I think, be conceded that the operations of November 23 may have brought about considerable pollution of the water supplied to 'the block,' and that that pollution may have been the cause of the marked incidence of the disease on the inmates of 'the block.' As regards later developments of diarrhœa in 'the block' it is necessary to bear in mind the later interferences with its waterwork reticulation; and it should be stated that, very shortly after the operations of January 11, several persons living in 'the block' independently reported to me diarrhœal illness of the same kind as that above referred to."

We thus learn that a sudden outbreak of diarrhœa accompanied by severe abdominal pain, vomiting, and the passage of blood by stool occurred in the block in question, at the end of November, 1892, and again later on; that means existed for the certain pollution of the water-supply under the influence of certain operations carried out on November 23, as also again later on; and that the causal relationship between the condition of the water-supply and the dysenteric outbreak has been established with a degree of certainty that can hardly be gainsaid.

The danger which existed in Melbourne at the time of this outbreak of local pollutions of the water-service is emphasised as follows in the Report:—

"Most of the fire-plugs in and near to 'the block' are in the streets by the sides of the gutters; and when it is remembered that generally in the metropolitan area these street gutters convey all kinds of liquid filth, such as human urine (in all about

half-a-million pints daily), some amount of solid human waste, sweepings of back yards, including dogs' excrement, kitchen slops, drainage from stables, cowsheds, and marine stores, the drainage also from street surfaces including the excrement of horses, of dogs, and of other animals, and so on; it will be manifest that these various forms of filth have ready access to the 15,000 or 20,000 fire-plug boxes distributed up and down the streets of the metropolis and so (seeing that many hundreds of these filth traps are opened weekly in the metropolis, and that flushing is only rarely carried out) to the water of the public service. Other fire-plugs are in situations to excite, if possible, apprehensions of even greater danger to the public health. It may be well here again to emphasise, as I have frequently emphasised, the fact that liquid filth enters the fire-plug boxes not simply by flowing directly over the upper edge of those boxes, but also by percolating into the sand and friable earth between the pitchers which are generally, or always, placed round about them, and so into the box from below; for it must be borne in mind that the statement frequently put out as to the interval between the bottom of the box and the top of the fire-plug chamber being rendered impervious is a myth, the liquid of the pervious gutters therefore tending to stand at the same height inside as outside the boxes."

"With these data, no wonder is excited by the complaints of foulness, of bad taste and smell, of the water, or by the statements that the bath has on occasions been filled with water so dirty and containing so many creeping and crawling things as to be repulsive to the would-be bather."

"It is impossible to say that *any* of the kinds of filth spoken of above can be admitted into the water-supply for men, women, children, and infants without prejudice to health. Typhoid fever and prevalences of diarrhœa and dysentery may, without question, be brought about by admission of such filth, and no doubt they are largely so brought about in this metropolis. Hydatid disease, too, is similarly propagated. This horrible disease is due to a tapeworm which lives in its adult stage in the bowel of the dog, and in its hydatid stage in herbivores and in man. The adult worm is only one-eighth of an inch long; it is hermaphrodite, and throws off vast numbers of microscopic

spherical eggs, embraced each of them in a very resistant shell. These eggs, leaving the dog in its excrement, are deposited in the streets, and pass, no doubt in large numbers, through the fire-plugs into the mains. The egg, on arriving in the human bowel, begins to develop; the embryo bores its way into a blood vessel, and so gains access to the liver or other organ; and there it enlarges to a great size, occasioning disease, which is so well known here in Australia as not to require special description. Nevertheless, and though all this is common-place knowledge, and though access of dogs to the catchment area is, I believe, as far as practicable prevented, fire-plugs are distributed in the streets of the metropolis in situations *par excellence* adapted for trapping dog dirt, and for admitting it and its hydatid eggs into the water-supply."

We cannot, in view of the various details set out by Dr. Gresswell, refrain from concurrence with him where he concludes that the water supplied to the Victorian metropolis is grossly contaminated in a variety of ways, and that the chief means of contamination are provided by fire-plugs, by leaks, and by pipes laid on direct without intermediate service-box for flushing urinals, drains and such like appliances.

Melbourne has its unbelievers just as we have them in the old country. And just as certain water officials have found the greatest difficulty in accepting any conclusion adverse to the water-supplies which have been condemned at home, so one official, at least, attached to the Melbourne Water Company declines to accept Dr. Gresswell's conclusion as to the cause of the diarrhoea and dysentery in question. But one thing must be obvious to every one, whether educated or uneducated, and that is that the Melbourne water is exposed to pollutions of an inexpressibly nasty type. This fact must lead to a change, and we feel pretty safe in guaranteeing Melbourne against such attacks as those in question when its water-supply has been protected against all such pollutions.

**DYSENTERY AND CONTAMINATED WATER AT THE
SUFFOLK COUNTY LUNATIC ASYLUM.¹**

THE report just issued by Dr. George Turner on an outbreak of dysentery and diarrhoea at the Suffolk County Lunatic Asylum reached us at the moment when Dr. Gresswell's report, above referred to, was under our consideration; and it aptly illustrates the relationship of a contaminated water-supply to dysentery and diarrhoea, although under circumstances which are very different from those by which the Melbourne occurrence had been brought about. The outbreak in the County Asylum commenced in the autumn of 1893, and the attacks, which numbered eight-seven in all, were variously diagnosed. Thus, forty-seven were referred to as diarrhoea, thirty-two as dysentery, and eight as typhoid fever. Dr. Turner discusses the diagnosis, and his reasoning justifies his conclusion that, in the main at least, the diseases were one in type and one as regards cause. The disease was no new one, for no less than 885 such attacks had occurred in the Asylum in the ten years 1881—92, and of these 767 with eighty-two deaths had been put down to diarrhoea and dysentery. The story was thus one of dysenteric mischief which was constantly recurring, with a special outbreak beginning in August 1893. In the latter outbreak the dysenteric symptoms were in a number of cases very well marked; indeed in some they were typical.

In dealing with the cause of this outbreak Dr. Turner discusses in much detail all the various conditions under which dysentery and diarrhoeal affections may be brought about. We do not propose to follow him in all these; we would merely say that he was able to set aside food supplies, drainage, and other causes, and that ultimately he arrived, by a process of exclusion, at the opinion that the water-supply was under grave suspicion.

¹ Report on *A Recent Outbreak of Diarrhoea, Dysentery, &c., at the Suffolk County Lunatic Asylum*, by George Turner, M.D., Lecturer on Hygiene at Guy's Hospital, London.

The sources of this water did not, however, help to clear up the difficulty, for the supply was derived from two wells, lying side by side, sunk through the chalk to depths of 305 feet and 350 feet respectively. The bores to a depth of 200 feet had been constructed with great care; a space around them had been filled in with cement, and when the cement had set a six-inch steel tube with screw joints had been passed through a vertical shaft in the centre of the cement casing; the interspace was again filled with cement, and only then was the boring below a depth of 200 feet resumed. Leakage into the shaft seemed impracticable.

But certain chemical analyses that were made led to a suspicion that surface soakage did take place. Some difference was shown to exist in the amount of chlorine per gallon in the water from the two bore-holes. And, allowing for an almost certain communication between the bore-holes below the 200 feet of cement casing, it was probable that the difference was even greater than that which was at first made out. Experiments were then instituted with a view to testing this; pumping was so contrived as to separate as far as practicable one water from the other; and the result was that No. 1 bore-hole gave from 11·3 to 11·4 grains of chlorine per gallon of water, whereas water from No. 2 gave only 5·8 grains. Indeed, it soon became evident that surface soakage contaminated the water, and this notwithstanding all the precautions that had been taken to avoid any such result. And this was not all. Microscopic examination of the sediment left by the water revealed vegetable *débris*, bacteria, and spirilla—objects quite foreign to a chalk water. Certain organisms found in water from one bore strongly resembled the "*amœba coli*," with which one form of dysentery is stated to be allied.

Under these circumstances a suspicious spot on the surface of the ground was selected as close as possible to one of the bore-holes, a pit ten feet deep was dug, and a large quantity of carbonate of lithium dissolved in hydrochloric acid was put into the hole. In samples of water drawn on the second day lithium was discovered. The lithium from this bore-hole is stated to have been in sufficient quantity to be seen when 300 ccm. of the water were evaporated. It was first discovered

by means of a small micro-spectroscope, but its presence was subsequently verified by the use of a larger instrument, with which it was possible to accurately measure the position of the red line.

Summarising the whole circumstances of this outbreak of dysentery, and of previous similar occurrences in the light of the conditions which were elucidated as the result of a highly skilled investigation, the conclusion arrived at is that the use of the contaminated water was, without any doubt whatever, the cause of the outbreak under enquiry, and that the previous similar outbreaks were, in all probability due to the same cause.

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ON TROPICAL DYSENTERY.

BY SURGEON-GENERAL SIR JOSEPH FAYRER, K.C.S.I., LL.D.,
M.D., F.R.S.,

Consulting Physician to Charing Cross Hospital.

DYSENTERY may be defined as a febrile disease, the result of the action of various noxious influences, or of a specific miasm, under certain predisposing conditions.

Constitutionally it presents pyrexial and nervous phenomena; locally it implies hyperæmia, inflammation, exudation, ulceration or sloughing of the coats of the large bowel with certain pathological changes in the glandular follicles, in some cases extending into the ileum, these being accompanied by nausea, tormina, tenesmus, scanty but frequent evacuations of gelatinous or sanguineous mucus, of sero-sanguinolent or of muco-purulent matter and blood, mingled with fæces of a peculiar odour; in the later stages, of shreds or masses of slough, sometimes involving large portions of the gut.

It may terminate in resolution and rapid recovery, or pass into inflammation, exudation, ulceration, sloughing, or gangrene, and then it is dangerous or rapidly fatal; or it may cause a chronic condition of thickening, ulceration, and cicatricial constriction, which is tedious, and may be ultimately fatal. It may be complicated with other diseases.

The several forms described merely express phases or complications of the same disease-process, which always involves some part of the large intestine as the seat of the essential local expression of true dysentery.

There is a tendency to involve other organs or tissues in the dysenteric process—*e.g.*, the serous membranes, kidneys, lungs, liver, spleen, &c.—or there may be septic infection by absorption from the diseased intestine. Tropical endemic and epidemic dysentery differs from the sporadic form chiefly in degree; the morbid process is otherwise the same in both. Under certain conditions it would appear to be infective.

ÆTIOLOGY.

A variety of opinions have been held as to the cause of dysentery, and many forms of it have been described. Zimmerman recognised the inflammatory, the bilious or putrid, the malignant, and the chronic. Until the time of Willis and Sydenham, ulceration of the intestine was regarded as the essential element of the disease. They, with Pringle and Morgagni, aver that ulceration is not the gravamen of the disease. Broussais and Pinel considered it an inflammation, more or less violent, of the large intestines—a colitis, in fact. These may be taken as examples of the views formerly held as to the nature and origin of this disease.

Fouquet, who wrote on dysentery in 1852, says that it is a spasmodic disease of a clonic character, whose seat is in the great sympathetic, localised and manifested in the large intestine—an affection in which there is diminished general sensibility, exaltation of the contractile muscular movements of the intestine, and increase of the mucous secretion, and that when the spasms attain a certain intensity and duration, they determine organic lesions of a grave character. He says, moreover, that the indications for treatment founded on this theory are to allay spasm, to restore the normal state of the nerve-centres, and, subsequently, to take into consideration the intestinal lesions. As to the cause, he says that it is disturbance of innervation in various ways, and, admitting that the concomitant causes usually assigned are efficient, they are so by their action on the nerve-centres, and that the same effects may

be produced by other and totally different causes. He denies entirely that dysentery is contagious.

Its prevalence and severity in countries where malaria, climate, food, and water are instrumental in causing other diseases, seem to point a similar origin. That there is something in tropical climates favourable to the development of dysentery appears from such facts as I have related. The degree of severity and prevalence in different regions would point to local conditions as factors in its production, whilst its occurrence in cold climates would indicate that the specific or exciting cause may depend on something independent of heat or malaria.

Dr. Maclean, of Netley, says : " Many of the so-called ' causes ' of dysentery must be regarded more as agents of propagation than of causation." " I believe dysentery to be caused by the action on the blood of a poison having a peculiar affinity for the glandular structures of the large intestine. The poison I believe to be a malaria generated in the soil by the decomposition of organic matter," and " just in proportion as we have banished malaria, so have we got rid of dysentery. For a long time the prisoners in Millbank were subject to visitations of dysentery at those seasons and in those states of atmosphere which most favour the decomposition of organic matter in the soil"—but it should be added that its disappearance was coincident also with amended diet. The same may be said of England generally, for when malarial fevers prevailed dysentery was severe and frequent. Both have diminished in severity and frequency, and now when seen they are so mild as to show that the activity of the cause has been reduced to a minimum. We still need information as to the nature of malaria, though the researches of Laveran and others seem to show that it may be due to an organism, a microzoon, developed in the soil and in the lower strata of the atmosphere in certain localities and climates, which infects the blood, and causes a paroxysm of ague. We are ignorant also of the nature of the specific poison, if indeed there be one, that causes dysentery. But we know something of the active agents of its propagation and the circumstances under which it is likely to arise ; and that it is apt to be prevalent

and severe wherever moisture and alternations of temperature are great, and where there is organic matter decomposing in a damp alluvial soil like that of Bengal. But we cannot assert that it is altogether due to such physical conditions, for there are examples of malarial fevers and dysentery abounding in regions having quite an opposite character, and many outbreaks in camps or other collections of men under depressing conditions in other than warm climates, such as the armies of England and France in the Crimea during the bleak and inclement winter of 1854, where, as Kinglake says: "Worn down by hard toil, numbed and lowered by cold and heat, suffering under wants so pernicious as to be too surely followed by scurvy, and assailed too by cholera, by true cholera, by dysentery, by fevers, and by numberless other complaints, our army underwent day by day appalling deductions from strength" (*History of the War in the Crimea*, vol. vi. page 201). Such instances prove that the group of symptoms may arise under many and varying conditions. It would appear that just as sanitary progress elsewhere has diminished its endemic severity, so it is tending to do the same in India, and there can be little doubt that local outbreaks are greatly under the control of preventive sanitation.

Twining, Annesley, Chevers, Payne, and others have pointed out the efficiency of impure water as a cause; and the diminution of dysentery and diarrhoea among the inhabitants of Calcutta, and the sailors of the shipping in that port, which is said to have taken place since the introduction of an improved water-supply, replacing the tank and unfiltered rain-water, confirms the probability of this view.

Unwholesome food, defective in quantity or quality, is an important factor. Fermenting grain; unripe fruits; irritating drugs or articles of diet of any kind; excessive use of salt provisions; rancid or decomposing matters, especially fatty and albuminous articles; intemperance in alcoholic drinks, especially bad sour wines, impure spirits, and malt liquors—all these irritate and cause diarrhoea that is apt to pass into dysentery in localities where the disease is endemic.

Vicissitudes of climate, exposure to cold and heat, sudden alternations of temperature, such as occur at the setting in of the cold season in India, or when the transition from the heat

of the day to the cold of night is intense; exposure to cold damp winds, and the moisture of the rainy and the drying-up seasons, in September and October, when the air is loaded with watery vapour; exposure of the body, especially the abdomen, during sleep or when perspiring; the sudden laying aside of flannel body-clothes, and so on—such proceedings being always pregnant with danger in a malarious or dysenteric region—even excessive dryness of the atmosphere, according to Mouat, all of these are effective adjuncts of the specific cause.

Pringle (page 19 of his *Observations on Diseases of the Army*) gives some remarkable instances. He says: "On June 26, 1743, in the evening the tents were struck, the army marched all night, and next morning fought at Dettingen. On the night following the soldiers lay on the field of battle without tents, exposed to heavy rain. Next day we moved and encamped on good ground in an open field, but it was wet (for two nights), and the first night or two the men wanted straw. By these accidents a sudden change was made in the health of the army; for the summer had begun early, and the weather had become intensely warm; now the pores were suddenly stopped, the body was chilled, and the humours tending to resolution from the preceding heats were turned upon the bowels, and produced a dysentery which continued a considerable part of the campaign. In eight days after the battle about 500 men were seized with that distemper, and in a few weeks nearly half the men were ill or had recovered." Trotter, in his *Medica Nautica* (vol. i. page 878), mentions "a lamentable dysentery" which was produced on board H.M.S. *Berwick*, in October 1780, in consequence of the hurricane on the 5th of the month, by which the clothes and bedding of the seamen, and indeed every part of the ship, were soaked in water, and many of the men "slept for nights together on the wet decks, overcome with fatigue and debilitated from the want of food." In seven weeks thirty of the best men died of dysentery, in some cases complicated with scurvy, and near 300 of the ship's company were ill when she arrived at Spithead.

Bancroft remarks, "Dr. Moseley says, 'it has often happened that hundreds of men in a camp have been seized with dysentery almost at the same time, after one shower of rain,

or from lying one night in the wet and cold.'” Bancroft evidently did not believe that dysentery was always produced by a specific poison, but was the result of a catarrhal condition in the large intestine; and it is not improbable that such is the explanation of some cases of sporadic dysentery, and that it is the result of changes depending on external influences, such as chill and damp. This would justify the distinction drawn by some authorities between the endemic or epidemic dysentery of tropical climates, and the sporadic cases of milder type that occur in any part of the world. That symptoms resembling dysentery do occur in India is well known to those who have studied children's diseases there, when what appears to be dysentery in a child disappears on the free lancing of swollen gums during dentition and the administration of a little grey powder; whilst, in the course of other diseases, symptoms may supervene as a consequence of fever and various forms of blood-poisoning, wherein it would be difficult to say in what respect they differed from real dysentery. Does dysentery, then, depend on a specific poison introduced into the system, or is it the result of a combination of several evil influences? That something is superadded in the case of malarious and tropical or other epidemic dysentery seems probable. That something may be the miasma of Maclean and others; it may be a microzoon, like that of Laveran; but until we are able to demonstrate the poison, this too remains a matter of speculation. The fact is, we have much to learn.

Impure air from any cause, but especially from putrefying organic matters, drains, cesspools, bilges of vessels, latrines, and reservoirs of stagnant water, putrescent with animal or vegetable matter, or it may be infected with germs, the emanations from ground that has been recently disturbed, and from which vegetation has been recently removed, from swampy, malarious, and mephitic pools, whence fever, cholera, typhoid, and other evils are said to be derived—any of these may become the predisposing if not the exciting causes of dysentery.

And there are instances on record of dysentery of a severe and deadly type having supervened after exposure to such effluvia. I remember the case of a detachment of European

soldiers sent, during the Burmese war (1853), to occupy an outpost near Martaban, on ground that had recently been cleared of dense tree-jungle, possibly with the view of making it healthier. That the men would contract ague or remittent fever was only too probable. There were few fever cases, whilst some suffered from dysentery, which proved rapidly fatal from gangrene affecting the whole or greater part of the large intestine. Instances of persons suffering from dysentery after exposure to the foul air of latrines, bilge-water, and the like are recorded by Fonssagrives, McGregor, D'Arcot, and other writers. Of all effluvia none are said to be more noxious than those given off by the dejecta of persons suffering from the disease, especially when crowded in hospitals. Whether this is due to direct infection, intensified by concentration, or to general depressing effects, I know not. That such effluvia are capable of contaminating the atmosphere I have myself had proof. In hospitals where sloughing and gangrenous cases of dysentery were treated under the same roof, if not actually in the same ward, wounds and surgical operations assumed an unfavourable action, or septicæmia in some form, or dysentery itself, supervened.

SYMPTOMATOLOGY.

Dysentery often commences with simple diarrhœa, probably accompanied or preceded by very little derangement of the general health. This may be of one or two days' or of longer duration. The evacuations are not at first attended with uneasiness or pain—indeed, they give temporary relief—but as the disease advances the desire to empty the bowel becomes more urgent, and is accompanied by tormina and tenesmus, the dejecta consisting chiefly of gelatinous mucus. Little relief is now afforded by the act, which is rapidly repeated, whilst with each effort the fæcal character is diminished, until at length rosy gelatinous mucus, sero-sanguinolent fluid, or blood, is discharged. Griping is severe, and there is pain on pressure over the tumid abdomen. The dejecta have an offensive and characteristic odour. The general symptoms are more or less marked, according to circumstances. There is

lassitude, nausea or sickness, loss of appetite, and a pinched and sallow expression of countenance; yet in some cases the disease may have advanced from the state of diarrhoea, perhaps preceded by constipation, into well-marked dysentery before the patient recognises the real nature of his complaint, takes alarm, or desists from his ordinary vocation. The symptoms are more pronounced in the young and previously healthy than in those who have resided long in the climate, or have suffered from previous disease or malarial cachexia. There may be a certain amount of febrile disturbance, a slight rise in temperature, preceded by chilliness, sometimes a rigor, and general discomfort; but as malarious fever is often present, it is difficult to say how far these may be due to this cause. As regards temperature, there is nothing that can be called typical of dysentery alone; the rise probably depends on periodic fever, though it *may* be due to the dysentery. The calls to stool are most frequent and severe at night; there is a sense of fulness and burning pain in the rectum, as though some foreign body were there, which is very distressing; and pain extends over the whole abdominal surface, more severe over one part of the colon than another; whilst the constant efforts to defæcate, which are so urgent that the patient will hardly leave the stool, and which may extend to the bladder, cause strangury, great exhaustion, and nervous depression.

Such is the condition in the catarrhal or congestive stage, and it is of the greatest importance that it should be dealt with at this period, for it may now be arrested and recovery may rapidly take place. Indeed, acute dysentery, in previously healthy persons, if dealt with early, before the bowel has passed beyond the stage of catarrhal congestion, is most amenable to treatment. This condition may last for some days, and does not always readily yield to treatment; during its progress the patient is much worn and exhausted by suffering. Exacerbation takes place during nights, which are disturbed by constant suffering. The patient rapidly becomes emaciated; his tongue is coated and white; the heart's action varies, and is often feeble.

When the disease progresses, either in the absence of due care and treatment, or from a natural tendency to get

worse, as in the epidemic form, the symptoms become intensified. The evacuations are passed with increasing tenesmus, and become more bloody, serous, or mucous, mixed with decomposing blood and fæcal matter. The tongue now becomes dry and red, in some cases affected by aphthous ulceration, or loaded with a coating of epithelium, which renders it white and swollen. Shreds of sloughy tissue begin to appear in the discharges, which are passed with intense straining. The abdomen becomes more tender, the thickened gut can be felt through its walls, the strength fails, the face becomes pinched and sunken, the skin harsh, dry, and yellow, the voice depressed, whilst the patient presents all the appearance of great exhaustion and sinking, and death from asthenia may result. The changes in the gut may progress rapidly; other organs may be involved, and the mischief spread to the peritoneum; peritonitis or perforation may occur, and cause rapid death. In the ulcerative process vessels may give way, and copious hæmorrhage carry off the patient; or gangrene may set in, when he falls rapidly into a state of collapse, indicated by cold clammy sweat, with eyes sunken, voice husky, absence of pain, thready rapid pulse, body and limbs cold, dark-coloured fœtid involuntary motions, muscular spasms, and death.

It is necessary to watch the appearance of the discharges, as pointed out by Dr. Goodeve, by carefully washing them and allowing the different parts to separate. The sloughs are thus distinguished from fæces, mucus, or other matters; the state of the bowel, the stage of the disease, and the nature of the morbid process may thus be ascertained with much accuracy. Though recovery is often complete, it is not always so, and structural changes in the bowel may give rise to serious chronic disease, the symptoms may continue, or after temporary amelioration recur. The dejections may become less bloody, but there is a chronic diarrhœa of loose fæces mingled with blood, mucus, mucopurulent matter, or pure pus. The rectum is in a state of extreme irritability; there may be protrusion, or the anus is excoriated, and hæmorrhoidal excrescences form. The tenesmus and tormina are distressing in proportion to the part of the large intestine affected, most so when the rectum is involved. This chronic dysentery is most exhausting, and completely

breaks down the health and strength of the sufferer. It is a frequent source of invaliding, forming indeed a considerable portion of the cases of chronic disease with which old residents in India are affected, and is very prone to pass into chronic wasting diarrhœa.

Such are the characteristic symptoms; they are modified according to the type or form the disease assumes, or by accompanying ailments.

Various types and forms of dysentery have been described, *e.g.* the *sthenic* and *asthenic*, under which every phase of the disease may be placed; the acute or inflammatory, attacking the young and vigorous, whether it be sporadic or epidemic; the sloughing, scorbutic, malarious, hepatic, and chronic, with continued diarrhœa and ulcerated or thickened bowel, are *asthenic*. Virchow divided cases into the *catarrhal* or *sero-purulent*, and the *diphtheritic* or *fibrinous*, many partaking, at one or other stage of their progress, of both conditions. These he considered to have each their peculiar course and termination, but that every case is *catarrhal* at the outset.

No line of separation really differentiates one type from another, but there are characters sufficiently well marked to distinguish them practically.

In malarious dysentery the ordinary symptoms of remittent or intermittent are superadded; there are complications involving the liver, spleen, or other abdominal viscera, portal congestion, *anæmia*, gastric irritability, or functional derangement of the abdominal viscera. Under severe impressions of the malarial poisoning (as in the case referred to in Burma), sloughing, phlegmonous, or erysipelatous dysentery may set in, proving most dangerous, and often fatal. Again, when the disease becomes epidemic among crowded troops in the field or garrison, especially when the circumstances are depressing and unfavourable, as from defeat or overwork, bad or defective food, and where there is want of proper rest and shelter, the condition may become most deplorable, especially if scurvy coexist; scorbutic cachexia, *anæmia*, dyspnœa, lassitude, exudation into the areolar tissue, pain in the limbs, petechiæ, lividity following the slightest bruise, bleeding and sloughing gums, and fœtor of breath, with great general exhaustion; and, added to these,

ulceration in the great intestine, attended by hæmorrhage, make the condition an exceedingly sad one, and, though not so fatal as the malignant or gangrenous colitis, cause great mortality. Should more favourable circumstances arise—improvement in the moral and physical condition of the men, the supply of better food, and prompt and careful treatment of all who present any indications of scorbutic taint—much alleviation is possible, and many may be saved. Perhaps nothing, unless it be the gangrenous form of the disease, gives a more striking illustration of destruction of the vital powers and disintegration of the living tissues.

The cause that excites the dysenteric process in the glands of the large intestine seems to act also on the liver. Dr. Budd was of opinion that liver-abscess, when complicated with dysentery, was due to infection of the portal blood by the intestinal disease, and in some instances it may be so, especially when the abscesses are multiple. Such are really typical cases of pyæmia. And I would here remark that these so-called abscesses should rather be regarded as necrosis than as ordinary abscesses, for if they be examined in their earlier stages it will be found that they are patches of dead tissue. These, if life had been prolonged, would have been converted into abscesses by suppuration taking place around the dead tissue, for this, acting as a foreign body, provokes the suppuration, which more recent researches show to be the seat of vast numbers of micro-organisms. Liver-abscess with dysentery sometimes assumes this form, and may be due to direct absorption from the bowel, or to systemic poisoning, as in other cases of pyæmia. This is by no means confined to the liver, for the spleen, the kidneys, or the lungs, and pleural or abdominal cavities, may be affected, and sero-puriform effusions may be found in the cavities.

The researches of Martin, Macpherson, Morehead, Moore, Waring, Parkes, Marshall, and others, show that hepatic disease is an occasional complication of dysentery in India and other malarious countries. Dr. Parkes says that "analysis of the secretion of the liver shows that it is more or less affected in every case of dysentery. Abscess, as a complication, is not the most frequent in tropical dysentery. Baly did not

find it in any of the Millbank cases, neither did Rokitansky in his experience; Dr. Wilson found it rare in the dysentery of China; Cheyne found it in the dysentery in Ireland in 1818 in four cases out of thirty; but Martin says it was observed in the dysentery of the Peninsular War, whilst it was rare in that of the Crimea. The fact is that the liver-disease is often independent of the bowel-ulceration, though due to the same cause, and it would be impossible to predict, if a number of men were exposed to malarial tropical influences, how many would suffer from dysentery alone, from remittent fever, from abscess or other liver-disease, or how many from a disease composed of all these morbid states.

Albuminuria is not a frequent accompaniment of dysentery, but it does occur, and in malarious cases probably more frequently than in others. Its import is always serious, indicating congestion, and renal tubes or cells loaded with exudation; but I am inclined to think that slight albuminuria is not always of so grave a nature as is sometimes supposed. The spleen also may be involved; and in the ordinary form of enlargement so common in malarious poisoning, which is always productive of anæmia and cachexia, if dysentery supervene, it must obviously be more dangerous, the tendency to ulceration and disintegration of tissue and hæmorrhage being already so great as it is in this state.

The spleen may become the seat of embolism and abscess or of softening. The lungs, directly affected by septic absorption, may become the seat of lobular pneumonia, embolisms, and local deaths, which end in abscesses. The special symptoms of these conditions would, of course, be superadded to those of dysentery, and render the prognosis more unfavourable.

It is not always easy to distinguish hepatic complications from an inflamed and ulcerated transverse colon; but the general concurrence of symptoms such as rigors, sweats, the rise and fall of temperature, indications of pyæmia and of large single abscess, which may take place insidiously and with little pain or disturbance of temperature, the physical signs of increase of size, or bulging, would aid diagnosis. The danger, of course, in all such cases is great. It is to be remembered that the liver during dysentery or any other disease, or even in health,

is more prone to be affected in the tropics than in cold climates, and this may help to account for the cases in which dysentery and liver-abscess are coexistent.

Martin and others thought that liver-abscess was intimately connected with disease of the cæcum, but this is not confirmed by post-mortem examinations, for out of seventy-two cases where the cæcum was affected, in only twenty-two was there liver-abscess.

A few words on the significance of the symptoms I have described. The tormina and tenesmus are due to irregular and excessive spasm or peristaltic action in the different regions of the colon and rectum, and especially to spasmodic contraction of the sphincter and upper circular fibres of the rectum and ileo-colic valve. They vary in extent and degree according to the part of the gut affected. Spasm in the rectum may extend to the neck of the bladder, and cause strangury, making the desire to micturate as frequent and as painful as that for defæcation. The griping and colicky pains are less severe when the cæcum only is affected; and the more the rectum is involved the greater the tenesmus. There are cases in which there is comparatively little pain, just as there are others without ulceration or blood.

The tormina and tenesmus are indeed the most distressing and exhausting features of the disease, and it is one of the main objects of treatment to allay the excessive action which causes it, and to soothe and relieve the catarrhal congestion and ulceration. The abdomen, in the earlier stages, is sometimes distended; later, it rather sinks in; and when the disease has advanced, there is severe pain on pressure over the gut thickened by exudation and ulceration. In severe cases, the cessation of the pain, whether of tenesmus or pressure, is an evil sign, for it denotes failing power, probably gangrene. The abdominal pain may also be due to extension of the inflammation to the peritoneum, which is indicated by the state of the abdomen and other concomitant symptoms of peritonitis. The mischief in some cases extends into the small intestines, stomach, and duodenum, giving rise to pain and diarrhœa like that of typhoid, whilst jaundice may be caused by the bile-ducts being catarrhally obstructed. Nausea and vomiting are frequently present.

It is not difficult to understand why this should be the case when the whole intestinal tract is sympathetically, if not directly, implicated. The evacuations are significant of the progress of the disease, and indicate the catarrhal or diphtheritic, ulcerative, and sloughing stages as they occur. The incessant tenesmus and discharges exhaust the patient. The quantity of each evacuation is small—a few drachms only—but in the day it amounts to a good deal. Clear, tenacious, viscid mucus, at times tinged with blood from the hyperæmic mucous membrane, indicates the catarrhal stage. As it becomes stained with blood, is rosy-coloured, red-currant-jelly like, or stained with fæcal and bilious matters, or is sero-sanguinolent or sero-purulent in appearance, with clots of blood mingled with mucus, epithelium, detritus of food, or foreign substances, giving the appearance of chopped meat, it shows that the disease is advancing. Or the stools may consist almost entirely of blood, depending on hæmorrhage from ruptured vessels, or of muco-purulent, sanious, sometimes pure pus, or muco-pus; certain lumps, composed of mucus and epithelial cells, which appear to have been moulded into this form in crypts, giving them the appearance of sago or frog's spawn, with the addition perhaps of some remains of articles of food. These indicate further advance of the disease. With these from time to time are mingled fæcal matters of a greyish-yellow or dark-green colour, according to the changes that have taken place by decomposition or chemical reaction in their passage through the intestines. As the disease progresses, other matters are mingled with the discharges, consisting of sloughs of various sizes. These are either portions of the mucous membrane or of exudation. The discharges (apart from the discoloration caused by drugs) become dark and grumous and fœtid, with gangrenous odour. The exfoliation of these sloughs, which commences about the second week, is perhaps of more frequent occurrence than is supposed, and the appearances presented by them are important in estimating the actual state and progress of the case.

In some cases the dejections are apparently free from blood, or even mucus—they are pultaceous, of various colours, and horribly fœtid. They have passed over surfaces no longer yielding blood, but in a gangrenous or sloughing condition,

which yield their putrilage. Such cases are extremely dangerous.

The prognosis in acute dysentery, if treated early, is generally favourable. The result is rapidly successful and complete. In more advanced stages it is more tedious and uncertain, and it must be borne in mind that tenesmus and excessive action may cause exhaustion and death, for it has been found on post-mortem examination that no ulceration had occurred. When the disease becomes chronic, the prognosis is more doubtful, especially when it is complicated by malaria, scurvy, hepatic or other disease ; and when it occurs in cases of splenic or malarial cachexia. Where extensive ulceration or gangrene has occurred, the prognosis is most unfavourable, and death occurs with all the signs of collapse, the consciousness and intelligence being often painfully keen and present until the end.

In the next paper the pathology and treatment of acute dysentery will be described.

(To be continued.)

THE MORBID ANATOMY OF THE LUNGS AFTER INFLUENZA.

BY LOUIS B. HAYNE, B.A., M.B., B.C. CANTAB.,

St. George's Hospital, London.

IN this paper I propose to discuss the various pathological changes, as seen by the naked eye, which have been found in the lungs of victims to the recent epidemics of influenza. The cases are especially interesting on account of their variety, and also of the frequency with which pulmonary complications have supervened on the ordinary form of the disease. The mortality of influenza is indeed mainly due to the involvement of the lungs; the deaths from the virulence of the febrile attack, and from implication of the digestive tract, being comparatively few. It is not only to the young and aged that these pulmonary complications have proved so fatal, but also to adults in the prime of life, death occurring generally about the tenth day after the onset of the attack.

The virulence of the last four epidemics has varied considerably. That occurring in the winter of 1892 was especially severe in London; whereas the epidemic during the latter end of 1889 and the first few months of 1890, and that one during the months of April, May, June, and July in 1891, were comparatively mild, the deaths ascribed directly to influenza being but few; though it is stated¹ that in Sheffield during the last-named epidemic the death-rate rose in one week to 70 per 1,000, owing to increase of deaths from the respiratory organs. The epidemic occurring at the end of last year was also mild as compared with that of 1892. The epidemic occurring in

¹ *Lancet*, vol. i., 1891, page 1061.

the winter of the year 1847, and extending into the early months of the following year, was of a very virulent nature, possessing a special tendency to affect the pulmonary system. This epidemic was at its worst during the first three weeks of December, in which out of 6,816, the total number of deaths, 842, or 12.35 per cent., were ascribed to influenza. Of these one half were those of persons over sixty years of age, and less than one quarter were those of children under fifteen years of age. It is a curious fact, however, that, out of 230 deaths occurring from influenza in the first three weeks of the following January, 128 occurred in children under fifteen years of age, whereas only 102 occurred in persons over the age of sixty. It is probable that this was accounted for by the fact that in the earlier part of the epidemic the aged and infirm, with lungs very likely weakened by chronic bronchitis, and with their general state of resistance to disease diminished by the decay of life, would be more prone to be attacked by and to succumb to any infectious disease to which they might happen to be exposed; and they would accordingly be the first to be carried off. And again, there seems, as is well known, to be a tendency for the type of an epidemic to vary during its progress.

Writing on this epidemic, Dr. Peacock, in his treatise on the Influenza or Epidemic Catarrhal Fever of 1847-1848,¹ mentions, as frequent complications, acute or subacute capillary-bronchitis, ordinary bronchitis especially supervening on tuberculous disease of the lungs or on previous diseases of the heart or aorta, and pneumonia either of the lobular or lobar variety. Describing the post-mortem appearances, he draws especial attention to the extremely inflated and emphysematous condition of the lungs, which instead of collapsing when the chest was laid open, in some cases even protruded from the thoracic cavity. Section through the whole substance of the lungs produced in some instances little change in their general volume. This emphysematous condition was not limited to certain portions, but was due to general and tolerably equal inflation of the whole of the pulmonary tissue. In cases which proved fatal at an early period, the parenchyma of the lungs had for the most part a peculiarly dry appearance; but in later stages there

¹ *On Influenza or Epidemic Catarrhal Fever of 1847-1848*: page 31.

was much congestion, more especially in the posterior and inferior portions of the lungs, and when the tissue was divided and compressed, a considerable flow of spumous fluid exuded from it. Pneumonic consolidation of lobar or lobular variety existed to greater or less extent in every instance. The mucous membrane of the bronchial tubes he describes as being reddened, and especially that of the smaller tubes, in which the mucous membrane was intensely red and deprived of its natural glistening surface, possessing a villous appearance, and being thicker and softer than usual.

In the more recent epidemics no such condition of general emphysema has been observed. Emphysema occurring at the anterior margins of the lungs has been frequently noticed, but that probably was either of old standing, of an independent origin, or was a secondary condition, compensatory in character, depending upon the extent of the disease in the rest of the lung. The lungs also have not so frequently been found in a state of consolidation. In some cases the organs have not been affected at all; in others, mere congestion of the bronchial tubes has been observed, which has no special significance.

In all epidemics of influenza there has been an increased susceptibility on the part of persons to contract pneumonia, the lobar pneumonia of the ordinary type; the upper lobe being the one generally affected, and often found to be of a greyish colour, very rotten, and almost suggesting purulent infiltration. It is not at all improbable that the epidemic of pneumonia which occurred in Middlesbrough and Northamptonshire during the months of January, February, and March in the year 1891, was primarily due to influenza, which at that time was raging through Europe, and in some parts of England, though it did not reach London till the month of April.

On the epidemic occurring in the winter of 1892, Dr. Ribbert of Berlin, in his official report on the general pathology of influenza,¹ writes with reference to the lobar pneumonia occurring in that disease: "The hepatisation on section has a peculiar smooth aspect, differing from the granular character of ordinary croupous pneumonia, and is commingled sometimes with areas of lobular hepatisation, or the latter may occur alone.

¹ *Lancet*, 1892, vol. i. page 1318.

Sometimes there is marked interstitial inflammation, perhaps explaining the tendency to abscess and pulmonary gangrene." This peculiar smooth aspect of the consolidated lung has been frequently observed in the deaths from the recent epidemics, as has also the association with it of areas of broncho-pneumonia. Often the solid lung looks as though it were composed of a number of patches of broncho-pneumonic consolidation, these patches having run together and involved the whole lung, suggesting the appearance of a confluent broncho-pneumonia, rather than that of the croupous variety of pneumonia. Some lungs, on the other hand, show the results of ordinary lobular pneumonia, and this condition was observed in persons of early adult life quite as frequently as in the young and old. Broncho-pneumonia, rare under ordinary circumstances in an adult, disregarding cases of septic origin, is by no means uncommon as a complication of influenza. But more common than this is the confluent type referred to above. This is often found existing in the same lung in conjunction with a red hepatisation, the grey isolated patches of consolidated lung tissue around a small bronchus contrasting very plainly with the uniform red and congested appearance of the remaining tissue. These patches often seem to originate first of all in the posterior borders, and thence to spread to the apices and the sides, so as eventually to involve the whole lobe. In other cases the apices are the parts first affected, apical pneumonia being much more frequently observed in connexion with influenza than with other conditions.

This disseminated consolidation often escapes discovery before death on clinical examination, either on account of the patches being embedded in the centre of a lobe, or on account of their small size. This peculiar form of pneumonia, appearing to be a mixture of the lobar and lobular varieties, has probably also existed in some of the former epidemics; though the frequency with which it is found varies considerably in different epidemics, and apparently also in different countries during the same epidemic. Dr. Janeway of New York, writing on the epidemic which occurred at the latter end of 1889,¹ calls attention to the large proportion of cases in which "patchy pneu-

¹ *Boston Med. and Surg. Journal*, April 24, 1890.

monia" with bronchitis existed. This was probably of the same or nearly the same nature as that to which I have referred.

The ages at which this confluent broncho-pneumonia was noted have varied between twenty and fifty; and in some instances the mortality of young adults seems thereby to have been especially increased. Dr. Shattuck,¹ from statistics collected in the Boston Hospital during the 1889—1890 epidemic, comments on the unusual prevalence of pneumonia, and the increased mortality from that disease in persons between the ages of twenty and thirty; broncho-pneumonia he describes as rare. Writing on the same epidemic, Dr. Pepper² of Philadelphia draws attention to the large proportion of cases in which the pneumonia was of the apical variety. The apical form I have already referred to as being common in the epidemic of 1892 and 1893 in London.

In some cases pale patches of broncho-pneumonia have occurred scattered throughout the lung, so as to suggest at first sight tubercle of the miliary type. These broncho-pneumonic patches, both the smaller isolated ones and the larger confluent ones, show under the microscope the small bronchi filled with fibrinous plugs; the cells lining the bronchi can be seen to have undergone proliferation, some of the proliferated cells having escaped and existing free in the lumen of the tube; the alveoli in the neighbourhood are crowded with catarrhal cells, and the blood-vessels in the surrounding tissue are dilated and crowded with corpuscles, some of which appear to have escaped from the vessel walls into the pulmonic substance. The patches can be seen to be distinct round each bronchiole, but to run into one another at the periphery. The microscopical appearance, then, of these confluent patches of broncho-pneumonia seems to differ but slightly from that seen in cases of ordinary catarrhal pneumonia. In the latter the bronchioles are choked up with catarrhal cells, and not with fibrinous exudation, which is very marked in the former, but the several patches of consolidation have not the same tendency to become confluent. The distribution is thus broncho-pneumonic, while the character of the exudation resembles that met with in lobar pneumonia, rather than that typical of catarrhal or broncho-pneumonia. As

¹ *Boston Med. and Surg. Journal*, April 24, 1890.

² *Ibid.*

in broncho-pneumonia, the localised patches of consolidation are accompanied with collapse of the neighbouring lung tissue, due to a similar cause—namely, the blocking up of the bronchioles with exudation and the consequent removal of the air from the alveoli in communication with the bronchioles at fault.

Localised patches of pleurisy, characterised by the adherence of the pleural surfaces to each other by means of recent lymph, are also frequently present; they arise from an extension of the inflammation from the superficial patches of consolidated lung tissue. It is seldom that pleurisy, occurring as a complication of influenza, takes the form of effusion into the pleural sac; not one case is to be found among the records of the post-mortem examinations performed at St. George's Hospital during the recent epidemics in which fluid in any appreciable quantity was discovered in the pleural cavity in conjunction with influenza.

The post-mortem appearances of the bronchi are also very interesting. Besides the capillary bronchitis which generally terminates so fatally, inflammation of the larger tubes is very common. The bronchi are found to be congested, their inner walls often being covered with thick tenacious mucus; as a rule the larger tubes are not so deeply congested as the smaller ones. The tubes are generally filled with muco-pus, which can be readily squeezed out on pressure; and in some cases they are so much distended with purulent secretion that on being cut across they look exactly like small abscesses, varying from the size of a pea to that of a pin's head. The whole thickness of the bronchial wall is considerably softened, and this accounts for the dilatation of the tubes which is often present. Occasionally the walls are so dilated that a condition of bronchiectasis (acute) is simulated. The dilatation involves the whole tube in its length, but more markedly at its terminations, and accordingly must be classed under the category of the cylindrical variety. Clinically, however, the typical symptoms of bronchiectasis are not manifested, though the expectoration may be very profuse. The contents of the tubes are not always muco-purulent in character. Sometimes the exudation filling the bronchi is quite fibrinous or membranous, and this condition

Dr. Faudel,¹ in the 1847-1848 epidemic, drew attention to from the cases he had had an opportunity of examining post mortem in France; and "this distinctly membranous exudation," as he describes it, is especially found in children.

In other cases congestion of the bronchial tubes is alone found, often in conjunction with a similar condition of the intestinal tract. This is probably brought about by the deleterious influence of the influenzal poison upon the nervous system, in consequence of which a general predisposition to local congestion is excited in different mucous tracts.

Though I have thus considered separately the morbid conditions which have been found in the lungs of persons whose deaths have been primarily due to influenza, it is not to be supposed that in each case there has been found only one variety of pathological change; as a matter of fact, the reverse is almost always the case. One lobe may be in a state of solid grey hepatitis, another may be studded with disseminated patches of consolidation of varying sizes, either so small as to simulate a miliary tubercle, or a little larger so as to involve several lobules, or still larger so as to implicate a whole lobe, according to the number of consolidated lobules and groups of lobules which have become confluent; while, at the same time, the bronchial tubes may be in any of the morbid conditions which have been above described.

¹ *Op. cit.*, pp 50, 51.

ON CASES OF INFANTILE DIARRHŒA COMPLICATED BY ACUTE NEPHRITIS.

BY ROBERT TURNER, M.A., M.B., C.M. ABERD.,

Liverpool.

OWING to the great prevalence of infantile diarrhœa in Liverpool during the past three months, practitioners have had special opportunities of studying this intractable malady. In spite of all their efforts, the mortality still remains very high. Failure results usually in those cases where the disease has gone on for at least three weeks. Of course there is always a history of bad feeding; but one does not always find bad hygienic conditions. Deaths have occurred where great care was exercised and every medical order duly carried out.

But the cases which call forth these remarks were quite out of the ordinary course as regards their complications. All three patients, to be general, were aged under a year, and had suffered from diarrhœa "for more than a fortnight." Another fact of interest is that they were all rickety children. Their family history showed nothing noteworthy. They were all seen for the first time within a period of four days. The treatment adopted was mainly that recommended by Dr. Burney Yeo in his useful *Manual*. Under this treatment all three seemed to be improving, but on the fourth day patient No. I. was noticed to have swollen feet, and was puffed under the eyes. On the day after, this was more marked, and the mother, in this case only, noted a diminution in the amount of urine on the napkins. The amount of liquid given to drink was about constant. Appropriate treatment was adopted for this condition, but on the fourth day the child died with all

the usual symptoms of uræmia. Curiously enough, coincident with the œdema of the feet and legs, there was an improvement in the diarrhœa, and bile-staining was almost absent. Patient No. II. ran a very similar course, and here a small sample of the urine was obtained, and found to be albuminous. Death took place in this case on the fifth day after the appearance of œdema. Patient No. III. lingered a week, and before the end œdema was extreme; but no "dropsy" could be made out. It may be stated that on the first appearance of renal symptoms the minute doses of brandy were stopped, wisely or unwisely, and ether and ammonia given instead. In all three cases the heart's action was good till within a few hours of the end. Great care was taken to ascertain the existence of scarlet fever at any time, but with negative results. What, then, was the cause of the acute nephritis? Was there a congestion, say, of the kidneys at the outset, for we are told that exposure to cold will cause both diarrhœa and renal congestion? In these cases, the mothers, except in the important matter of feeding, were good nurses, and kept the children clean and warm. It seems improbable, moreover, that the drugs given set up the nephritis. What was remarkable in all the cases was the great improvement in the diarrhœa on the appearance of the kidney trouble. In such cases we are told that certain organisms are found in the intestines which elaborate ptomaines and alkaloids. As long as the diarrhœa lasts these may mostly pass off by the bowels. But when it is checked, they may be absorbed and eliminated in greater quantity by the kidneys. This *may* account for the nephritis, but one is afraid to speak with any degree of assurance, owing to the many fallacies incident to reasoning from clinical observation alone. One often wonders whether long-continued irritation in the alimentary tract and in teething may reflexly set up vaso-motor changes in other parts of the child's organism. Such changes may affect the circulation in the kidney, and, aided by the excretion of poisonous products in the very unstable organism of a child, lead to the complications noted above.

PIPERAZINA AND OTHER ELIMINANTS IN THE TREATMENT AND PREVENTION OF GOUT.

BY E. D. MAPOTHER, M.D., F.R.C.S.I.,

London.

NOTWITHSTANDING the vast strides which have of late years been made in our knowledge of the pathology of gout, it cannot be asserted that the initial morbid process is determined. Certain it is that in that disease, and the many disorders and symptoms connected with it, urates are retained in the blood, and stored in the liver, spleen, and joints. There is good reason for believing that extremely minute crystals may deposit on the cardiac valves, there leading to enduring mischief, and in the substance of the lungs and kidneys. In the joint structures, where circulation is slower, especially in their abundant lymphatics, their precipitation is made more easy thereby. The manifest indication is therefore the removal of the urates from the body, this being of course most attainable in the early stages when the kidneys are healthy. A few practical observations in this direction may be acceptable.

Nearly two years ago I learned from the late Sir A. Clark that piperazina was a potent solvent of the urates, and I have since used it with excellent results. It is strongly alkaline, and therefore deserves the termination *ina* to mark that character. The most recent and very able researches as to the drug are those of Dr. John Gordon of Aberdeen (*Brit. Med. Journ.*, June 16, 1894), who estimated its solvent power on crushed uric calculi as compared with that of other substances. The crushing gave an increased surface for solution, and a friend of mine who has

repeated some of the experiments with small whole stones, hoping that such might be acted on within the bladder, has not had satisfactory evidence. But it is likely that a coating of some other urinary deposit excluded the piperazina. When given internally some of this substance reaches the bladder unaltered, and there may dissolve the uric gravels. The profession will anxiously await Dr. Gordon's paper, in which he is to report clinical observations.¹ I have had few opportunities of using the drug in acute gout, which with improved hygienic and regiminal habits is becoming less frequent, while varied manifestations of the uric diathesis arise or are discovered in greater number. In regulating intermittent pulse, clearing habitually turbid urine, relieving sick headache and depression and pricking joint pains, its effects are apparent.

The following instance impressed me greatly:—a child aged nine, of very gouty parents, suffered one attack of acute and two of sub-acute rheumatism, and then developed intermittent paraplegia. Regarding the diathesis as one merely modified by age, piperazina was largely given, and the paralysis twice suddenly disappeared.

The dose should range progressively from five to ten grains thrice daily. No untoward effect has ever appeared, even after twenty-grain doses occasionally given. A small dose nightly for some weeks is a reliable prophylactic. There is no advantage in prescribing it in effervescing waters, which may contain lime-salts. For the present its high price (twelve shillings an ounce) makes it scarcely attainable for public practice. It bids fair to supplant lithia, potassa, and salicylate of sodium as solvents and eliminants of the urates.

An occasional dose of blue pill does manifest good by increasing biliary excretion and lessening the storage of urates in the liver and spleen. It has been said that mercury may form an insoluble urate, but, having extensively used that drug for syphilis and psoriasis, I never saw any arthritic symptom produced by it. In passing, it may be noted that while adult and

¹ Since this paper reached the printers I have read Sir W. Roberts's admirable Croonian Lectures in which he denies that piperazina (and carbonate of lithia) have any solvent power over biurates of soda. They may, however, prevent the change of quadrate to biurates, as does chloride of sodium, according to his earlier investigations referred to further on.

aged patients with the oozing postvesicular form of eczema are always of the uric diathesis, there is no connexion between that condition and psoriasis. If the time-honoured custom of taking a saline the morning after the blue pill is to be followed, any of the natural purging waters are suitable. The Villacabras water is very popular in Spain where it rises, and in the United States. I have used it in gout cases occasionally, and found it satisfactory, especially as regards the non-production of subsequent constipation.

For the alleviation and prevention of chronic gout there is no agent so easy and so efficient as the copious drinking of pure water, especially between meals. For the first eight years of my service in St. Vincent's Hospital, Dublin, gouty affections were to be frequently seen, the city water supply being very calcareous and most scanty; whereas from 1867, with the Vartry water, the total solids of which are only four grains per gallon, and which is supplied most abundantly, such cases gradually and greatly lessened. In the Royal Hospital for Incurables, where I was concerned in the admission of patients, the same was apparent. The status of the disease was, however, made less evident by the habitual stimulant of the humbler people having changed from whisky to porter; and during a vacation visit last month to that city, it was evident that, among two classes of the employed who drink the latter liquor very freely, gout was extremely common.

The peasants of the western half of Ireland suffer largely from chronic rheumatic arthritis, due probably to the small amount of sodium chloride and alkaline carbonates in the farinaceous food they mainly rely on, and the great quantity of lime in the well-water which they drink. Thus may be accounted for the eburnation of the articular surfaces and the bony growths round the joints. It is possible that as age advances the lime may displace soda deposited earlier. Similar conditions have led to exostoses in horses. The cold damp climate and neglected ablution check perspiration and direct the water to the kidneys, and thus may be explained the rareness of calculous disease amongst those people. The natives of India use a very similar class of food and water, yet in some districts stone is surprisingly common. Free perspiration and

muscular inactivity may go some length in explaining the proclivity, but as the natives of other districts living on similar diet are free from the disease, some meteorological or geological factors not yet ascertained must be present. The tax on salt which held for half a century in Great Britain increased calculous diseases, and is still operative in India. This essential element of food acts both by chemical powers and by exciting thirst for water. That February is the month in which most gouty attacks arise is owing to the preceding cold, which checks perspiration and thirst, and thus the urates are allowed to store up.

The drinking of water at about 130°, a habit copied from Wiesbaden, has come much into vogue, and has been advised at bedtime to prevent insomnia. An hour before retiring is a more suitable time, so that rest shall not be broken by the need for micturition; while the heat of bed would draw off the water by the skin instead of allowing it to flush the urinary organs by which the good is done. The sleep of gouty persons is often disturbed by light and noises, and a simple expedient is frequently effectual: if the edge of the pillow be placed under the occiput it folds over the ears and eyes, and completely shields them. The patient must sleep lying on the back, which is the most natural posture. In places where a public supply of soft water is not to be had, distilled water now sold under various trade names is very useful, as is also rain-water boiled and filtered. When distilled water is charged with carbonic acid, that gas may render the mass of food in the stomach spongy, just as it does the baker's dough. A notable result of the drinking of pure water is the lessened frequency of micturition amongst the gouty.

A belief is growing that the best health-resorts for the gouty are those in which the waters contain the least solids, with the exception of those wherein sodium chloride abounds. Wiesbaden and Kissingen contain respectively 52 and 62 grains to the pint, and the action is either the solution of the urates, or, as Sir W. Roberts believes, the prevention of the change in the quadrates to biurates. The immunity of sailors from uric diseases is attributed to the quantity of common salt in their food. The action of sulphur waters is not fully understood, although their

usefulness has been recognised for centuries. It may be mentioned that that of Lucan, eight miles from Dublin, has been made most available by the erection of a large hotel, in which the water may be drunk, or used for baths. When bottled, it remains unchanged for many months. The climate of the place is so mild that it is an excellent winter resort. If people could be induced to drink six or eight tumblers of pure water daily at home, the only advantages of new and foreign residence would be the climatic, scenic, and social changes, which are, however, pleasures by no means to be despised.

Of alcoholic liquors, unsweetened gin is by far the most admissible, and champagne the least so. How delightful it would be if the producers of this wine would exclude as much as possible the acidifying or unfermented matters! The prostate and anus, which have a common vascular and nervous supply, are often highly irritated by the taking of even a glass or two. As to beers, we have the unassailable testimony of Sydenham that "London small-beer, hop'd or unhop'd," is useful, and I have never found that Bass's India draught pale ale, taken in small quantities at meals, disagrees. In many places it is difficult to procure it retail, inferior stuffs being substituted, and waiters habitually spoil it by pouring it from a height, thereby dislodging carbonic acid and making a mere froth of air. This drink is laxative, while the contrary is to be said of other ales and porters, especially if bottled, owing to their acidifying matters. An occasional fast from alcohol, and from varieties of highly nitrogenised solid foods, is often serviceable, for man's diet has become more and more complex, and more unlike the unvarying meals of other animals.

Fresh fruits appear to aid in the excretion of the urates, as their salts alkalis and increase the urine, and their vegetable acids stimulate the salivary glands. Their peculiar sugar is readily absorbed, whereas cane-sugar is injurious, much of it not being acted on till it reaches the small intestine, where it meets with invertin. Last century honey was a usual sweetener. In 1700 the quantity of cane-sugar consumed in Great Britain was 10,000 tons, now it is a million and a half. A dietetic error, that of depending on a late dinner as the principal meal of the day, has been lately amended a good

deal, many persons taking most of their animal food soon after midday. The habit in other classes of taking tea with their chief meal is highly causative of dyspepsia, largely because of the effect of tannin in checking salivary flow. Frequent small meals are clearly advisable for the gouty, as thereby the urine is kept alkaline for a great part of the twenty-four hours, giving eight hours' work a day at least for the kidneys under this chemical condition.

The daily sponge bath, preferably at 82° (the Buxton water temperature, on which much of its efficacy depends), is distinctly preventive of gout, especially if followed by rough friction. Of course the latter is to be avoided over places where eczema exists, or has existed. The Turkish bath is also advisable in many cases, and shampooing may remove the uratic stasis in the lymphatics, and may partially break down tophi and lead to their absorption. Of crippling gout I have sent some cases to Bath, and forcible extension seems to have been the most potent curative measure. The baths there are unequalled in arrangement. Lastly, well-regulated exercise is all-important, as one fact will make evident: in a gouty subject of hemiplegia, uratic deposit is abundant in the powerless leg, while often absent in its fellow. Inactivity during a long sea-voyage, combined with the usual full living, often provokes gouty symptoms; but the sea-sickness must rid the digestive organs of urates, and hence the improved health which frequently results, and the *malaise* which follows if there has been no emesis.

THE DRUG TREATMENT OF PHTHISIS.

BY FREDERIC C. COLEY, M.D.,

*Physician to the Northern Counties Hospital for Diseases of the Chest, and to the
Hospital for Sick Children, Newcastle-upon-Tyne.*

I SHALL quarrel with no one who chooses to maintain that, in phthisis treatment by drugs is relatively of small importance compared with hygienic and especially climatic therapeutics. But unfortunately climatic treatment is too often out of the question. Many of our patients cannot afford it; and many are in such a condition that to send them far from home would be nothing but useless cruelty. And even where it is possible to secure all the aid which climate and general hygiene can give, the struggle is likely to be so severe that we may be glad to give all the aid which we can by adding drug treatment to more essential measures. The suggestions which follow will, however, chiefly have reference to that large class of cases for which we are obliged to do our best while the patients remain at home. Ultra-scientific therapeutists are fond of pouring scorn on all treatment directed to the mere relief of symptoms. And their scorn is justified, when it is possible to leave mere symptoms, and, by truly scientific treatment, to remove or cure the real cause of the disease. Our therapeutic professors do well to inculcate love for high science in their lectures to medical students. But it would not be an exhibition of sweetness and light, if one should address some wretched patient thus: "My poor fellow, science, in the person of Professor Koch, has demonstrated that the *causa causans* of your disease is the tubercle bacillus. And perhaps some day science may discover a method of

killing these vexatious bacilli without killing the patient at the same time: or perhaps it may become possible to render human beings immune to the tubercle bacillus, just as vaccination makes them immune to small-pox. But we can do nothing until the German scientists make out these little points for us. For, unfortunately, experimental work is so hampered by legislation in England that we have small chance to make any progress." To him then the suffering and bewildered patient: "But I am afraid I may be dead some years before these wonderful Germans have made out these fine points; and in the meantime cannot you do something to ease this fearful cough, and to check the night-sweats and diarrhoea that are pulling me down at such a frightful rate?" To whom the scientific therapist, with nasal organ raised on high—"Tinkering with symptoms is utterly unscientific."

For my own part, I hold that the highest skill is well employed, supposing no better can be done, in relieving suffering and prolonging life. And in passing, I may say that I can see little hope of finding a germicide which can be administered in such doses as to destroy the vitality of tubercle bacilli, without injuring the blood-corpuscles and the living cells of the tissues. The possibility of producing artificial immunity to the tubercle bacilli looks a little more hopeful, in the light of the fact [that certain animals appear to possess partial immunity. But I think we ought to have known beforehand that the tuberculin *furore* was leading us on a wrong scent. The metabolic products of the bacilli can have no saving virtue—or else the tuberculous cervical glands, which the surgeons are now so anxious to excise, would surely be the best possible protection from phthisis.

The first drug to which I propose to make reference is *guaiacol carbonate*.

The exact therapeutic value of guaiacol carbonate is a very complicated question, the rather because it is not (like the other remedies to which I have to refer) credited with power of controlling any special symptom. It appears rather to influence favourably the general condition of the patient, and to enable him to gain both in strength and weight. But to gauge the amount of credit due in any case to a given remedy must be a

very complicated question in a disease so variable in its course as phthisis. Nor are the natural variations in the disease our only difficulty. For purely scientific experiment, it would be desirable that the drug under trial should be administered alone, the patient's diet and environment being no way altered in the meanwhile. But no conscientious physician would attempt such an experiment, even if the patient and his relatives would consent to it. If we would help our patients, as we ought, in their struggle against such a disease as phthisis, we must score every point that we can against the enemy. While carefully avoiding fussy and useless medication, we must be ready at all times to employ any additional resource which the special circumstances of the case may indicate.

It might appear, therefore, that the practical value of a remedy like guaiacol carbonate is a matter which could only be decided by the observation of a much larger number of cases than it would be possible to have accumulated in the short time which has elapsed since its introduction. But happily we are not entirely dependent on direct experiments with guaiacol carbonate itself. Creasote has been tried quite sufficiently to fairly establish its therapeutic value. Especially in France it has been used so extensively as to leave small room for doubt about its power to check the course of phthisis very materially, in those cases where it can be tolerated in adequate doses. This last is just the weak point of creasote as a remedy. Now guaiacol carbonate has a fair right to claim as evidence in its own favour all the accumulated experience upon which the therapeutic reputation of creasote rests. And a comparatively limited trial is quite sufficient to prove that it is not open to the objections which so commonly militate against the use of creasote. Guaiacol carbonate is not quite tasteless, but the creasotish flavour which it has is not strong enough to be at all seriously disagreeable. I have found that children take it without making any special objection. Indeed, many appear actually to like it. I remember only one patient who complained of its taste at all, and she was also the only one who spoke of any considerable nausea following it. In her case the difficulty was overcome by administering the drug in compressed tablets. In all other cases it has been taken readily enough in the form of

powder. I have given it to children of the age of nine years and upwards, in doses reaching up to gr. xv., night and morning, and I have never seen the least sign of intolerance by the stomach, or any ill result. It has been my custom to begin (in the case of adults) with gr. v. every night, gradually increasing the dose, and afterwards giving it in the morning, as well as at night; but this caution now appears to be unnecessary, however reasonable it might have been in trying a new remedy. I believe it will be quite safe to recommend gr. xv. every night as an initial dose for an adult. After a few days' trial it may be given two or three times daily, and the dose may be gradually increased. As much as 75 grains (in divided doses) have been administered daily. But I have not myself, as yet, gone beyond 50 grains daily; although I believe it is quite possible that the larger doses may be beneficial, and I have seen no reason to believe them to be dangerous.

My best opportunities for observation have been in children, in-patients in the Newcastle Children's Hospital. There I think I have seen results which are at least encouraging enough to suggest more extended trial. A curious fact, which may certainly be a mere coincidence, deserves record. For one week our supply of guaiacol carbonate failed. During this week, three children who had been taking it lost weight, or ceased to gain: and they all gained weight again the next week when its administration was resumed. The coincidence is remarkable, although all these patients had fluctuations in their progress at other times, not explicable in the same way.

Guaiacol carbonate does not appear to have the power of checking tuberculous diarrhoea: nor can I say that I have observed any direct effect upon cough or expectoration, or physical signs. Nor can I claim for it any well-marked power of controlling temperature. But appetite and general health improve, and weight is gained under its administration, so that it would appear to be in some sort an antitoxin, partially neutralising the general (as distinguished from the local) effects of tuberculous metabolism.

Perhaps the chief objection to the general use of guaiacol carbonate is its cost. But that we may hope will be less when the demand for it is greater. And even as it is now, patients in

very moderate circumstances make no difficulty about spending much more upon the problematical compound spirit described under the name of port wine than would be required for full doses of guaiacol carbonate.

Salol.—I have found salol very successful in the treatment of the diarrhoea associated with phthisis. Remarkably small doses (gr. v. every morning for an adult) are often sufficient, though occasionally gr. x. two or three times daily may succeed where smaller doses have failed. I may remark, in passing, that the same remedy is often useful in the septic diarrhoea of children; but *proportionally* larger doses are required.

Morrhual Creasoté.—Another remedy which has sometimes given good results in tuberculous diarrhoea is *morrhual creasoté* (prepared in capsules by Rigand and Chapoteaut of Paris). Morrhual is a material extracted from cod-liver oil. It has been recommended as possessing the medicinal power of the oil from which it has been separated. This seems too good to be true, and it is not in accord with the commonly received theory of the action of oleum morrhue. Nevertheless this creasoted compound has certainly yielded very good results in the cases referred to.

Pure Terebene.—I am in the habit of prescribing terebene in combination with cod-liver oil in cases of phthisis—ten drops of terebene being mixed with each dose of oil. Terebene is obviously eliminated in the breath. It is to be recommended especially in those cases where the expectoration is profuse or offensive, and where there is a tendency to hæmorrhage. Moreover, patients often tell me that the cod-liver oil “agrees better” when combined with it. On the other hand, the terebene itself occasionally disturbs the stomach. I have very rarely found it to cause any irritation of the urinary organs.

Intra-laryngeal injection of Menthol.—I must own that when I first saw this method of treatment described in the medical journals I was not favourably impressed with it. It appeared to me like some other therapeutic inventions, which only a German physician would attempt to use, and only a German patient would tolerate. But when my prejudices were so far overcome as to induce me to make trial of the method, I soon found that it gave the patient no such annoyance as I had anticipated, and the good results were far beyond my expectation.

I am indebted for the formula which I use to a paper in the *British Medical Journal* for April 12, 1891, by Dr. Downie. It consists of menthol 20 per cent. with guaiacol 3 per cent. dissolved in olive oil. Dr. Downie recommended vaseline oil. But I have not been able to perceive that it has any great practical advantages over olive oil.

The laryngeal syringe should have a delivery tube with a single terminal opening—not a number of minute lateral openings, as in most laryngeal syringes which I have seen. The syringe which I use has a glass barrel and a delivery tube of vulcanite. But a silver delivery tube might be preferable. The syringe should be capable of holding a fluid drachm, which is the largest amount which I have found it expedient to inject at one sitting.

The point of the syringe should be guided, by the help of a laryngoscope, into the upper part of the larynx. It is not necessary to insert it between the vocal cords: it is quite sufficient to get it past the epiglottis. From ℥xx to ℥ss of the solution is injected at once. After a pause of two or three minutes this may be repeated. If there is any tendency to cough, the patient should be told to repress it; and usually there is little difficulty in doing so, provided the injection has been neatly managed. It is obvious that the dexterity which can only be acquired by practice has much to do with the success of this method of treatment. When I first made use of it, I occasionally produced a very troublesome fit of coughing, like that which takes place when some liquid is “swallowed the wrong way.” This has scarcely ever happened to me lately. A great point is to see that the patient is making deep respirations while the injection is being given. This secures the wide patency of the rima glottidis, which is necessary for the satisfactory descent of the solution into the trachea.

The syringe should not be completely emptied when the final injection is made. Then the extrusion of the few drops of solution remaining serves to prevent any trace of mucus from being allowed to occupy the lumen of the delivery tube. This should be first carefully wiped with dry cotton-wool (to be burnt immediately, of course), and then with cotton-wool wet with

carbolic acid and glycerine in equal parts. The tube should then be dipped in the same, and left wet with it. This appears to me the best method of sterilising the syringe after use, the necessity of which must be obvious. The carbolised glycerine has no injurious action on vulcanite. I am accustomed also to soak the laryngeal mirrors in the same for at least six hours (washing them thoroughly first) after use.

The dyspnoea of phthisis is often relieved in a very striking manner by these injections, and the relief from cough often lasts for two or three days. The rest and sleep which are thus secured (without the drawbacks which attend the administration of sedative cough mixtures) are a material help to the patient in the struggle against the disease; and in some cases there appears to be a direct effect upon the local morbid processes. Any patient who is able to tolerate an ordinary laryngoscopic examination can bear these injections, provided they are administered with a reasonable degree of expertness.

Inhalations.—Where the intra-laryngeal injection of solution of menthol cannot be used (or perhaps in addition to it), inhalations are sometimes very serviceable. I generally prefer one of Dr. Coghill's formulæ, namely:—

Tr. Iodi Ætherealis ʒij,
Acidi Carbolici ʒij,
Creasoti *vel* Thymolis ʒj,
Spiritus Chloroformi ad ʒj.

Dr. Burney Yeo's inhaler, made of perforated zinc, is the best, and it also has the merit of cheapness, as it costs less than a shilling. The iodine does not seem to act upon the zinc to any inconvenient extent. About ten drops of the liquid should be used at a time. This often gives much relief in the paroxysms of coughing. About half a teaspoonful of eucalyptol or pure terebene may be sprinkled on a handkerchief, and so allowed to vaporise as near as possible to the nose and mouth of the patient as he lies in bed.

With a similar purpose I have recommended that carbolic acid should be vaporised at night in the bedroom. Calvert's simplest form of vaporiser (costing about 1s. 6d.) is very

suitable. It is used with a dry powder charged with a proper quantity of carbolic acid. This sometimes appears to give relief to the cough at night; and it is reasonable to expect from it a favourable influence on the general course of the disease. I may mention, in passing, that I have found it extremely valuable in the treatment of pertussis.

I need scarcely say that in the above memoranda I have made no attempt to give a complete or systematic account of the subject. I have but presented some gleanings from my own observations, which I hope may be of a little service to my readers. More generally appreciated remedies are unnoticed, not because I undervalue them, but simply because I do not know that I can add anything to the common stock of knowledge about them. I believe, for instance, that arsenic is not without value as a tonic in phthisis, although I could not produce definite evidence of it. I commonly prescribe the hydrochloric solution of arsenic in combination with the compound syrup of hypophosphites; a mixture sufficiently complex to evoke the intensest scorn of the scientific therapist, I have no doubt.

I am not sceptical as to the value of the hypophosphites of calcium and sodium. But it is needless to discuss what is so familiar.

It is not perhaps sufficiently well known that cod-liver oil may be assimilated, with the addition of spiritus ætheris sulphurici, by some patients who are unable to digest it otherwise.

Reviews.

On Seborrhœa and its Consequences. By JOSEPH FRANK PAYNE, M.D., F.R.C.P. Pp. 23. London: John Bale and Sons. 1894.

DR. PAYNE in this pamphlet discusses, in his usual clear style, a condition which in recent years has excited much dermatological interest. He first deals with dandruff or dry seborrhœa, next with the micro-organisms of the scalp, next with the general course of seborrhœa and the consequences of a scurfy head, and he then passes on to the consideration of the affection first called by Unna *eczema seborrhœicum*. Dr. Payne is in favour of the practice of speaking of cases in which the head is the first part to be affected as "descending eczema," and, analogically, of cases of "ascending eczema" when a chronic eczema of the lower leg spreads to the rest of the body. Dr. Payne begins the treatment of seborrhœa of the scalp by carefully applying for a few days a solution of perchloride of mercury (1 in 1,000 or 1 in 2,000). The next remedy to be employed is sulphur, which is undoubtedly efficacious in all sebaceous affections. He generally prescribes with most beneficial effect an ointment composed of Precipitated Sulphur, gr. xv., Carbolic Acid, ℥ xv., Vaseline, ʒj. Coal-tar solution or creasote may be substituted for the carbolic acid if preferred. The effect of this application is extraordinary. In a few weeks the scurf disappears almost entirely, and the condition of the hair is improved. Dr. Payne's pamphlet is most instructive reading.

Micro-organisms in Water: their Significance, Identification, and Removal. By PERCY FRANKLAND, Ph.D., B.Sc. (Lond.), F.R.S., and MRS. PERCY FRANKLAND. London: Longmans, Green, and Co. 1894.

THERE can be no question that the bacteriology of water presents more difficulties and gives rise to more important issues than perhaps any other single one of the numerous

branches into which the new science is already divided. The micro-organisms in water are themselves so numerous, the processes for their detection, identification, and enumeration are so laborious, and the chances of wide errors of observation (in not quite competent hands) are also so extremely likely, that we welcome the appearance of this excellent volume, coming as it does from authors who have made this side of bacteriology peculiarly their own.

A survey of all the more important methods of bacteriological study is given, and those which are specially applicable to the examination of water are described in greater detail. Of very great interest indeed is the account given of the principal results arrived at by the use of these new bacteriological methods in the study of the different kinds of water, and the changes which they undergo through natural and artificial agencies. The different tables introduced plentifully in the text are of great value, even if the figures at times become a little bewildering.

It must be a matter of great consolation to everybody to hear that, on the average, out of every hundred micro-organisms present in untreated river water (Thames and Lea), the water companies can remove 97 or 98 of them by suitable sand-filtration before distribution. Let us turn next to the end of the book, where the authors have given us a good account of upwards of 200 micro-organisms found in water, and pick out those whose names are very wisely printed in red letters in the text, showing that they have been found to be pathogenic to man or animals. Of the former we find five, of the latter nineteen. Micro-organisms pathogenic to man found in water are those of cholera, anthrax, tubercle, tetanus, typhoid fever. Under ordinary circumstances we think we can eliminate the first four micro-organisms, which leaves us for all practical purposes in this country solely the bacillus of typhoid to consider in respect to water-pollution and its purification.

When we remember that the authors have given us the names and characteristics of upwards of 200 different micro-organisms found in water, and when they tell us that out of every 100 micro-organisms in ordinary river water the companies by sand-filtration can remove 97 or 98, it certainly appears most unwise to drink water in London otherwise than from the tap. And when different epidemics of typhoid fever are considered, they nowadays seldom occur—in London, at any rate—through pollution of the water-supply as distributed in our mains. Outbreaks of typhoid in London have been more often caused by a pollution of milk-cans with water from a tainted source, and used either for purposes of washing or dilution, or have spread perhaps from a known focus; and one has only to

look to the case of a well-known health resort on our southern coast to appreciate the fact that when a water-supply is poisoned with typhoid bacilli the consequences are sudden, evident, and widespread. In a word, we are inclined to think (and this book supports our view) that the risks of drinking London water as distributed have been somewhat exaggerated; and that, if the truth were only known, possibly more harm has been done by the irregular use or abuse of one of the many forms of domestic filter. The authors have given us again their views on house filters and their power, which in the case of the Pasteur-Chamberland filter we have verified; and we have only to repeat, what we have before stated in our pages, that it is better to have no filter at all than one which is never attended to. For our own part, and knowing that we have only to remove two or three in 100 of the original Thames water micro-organisms, we feel fairly secure in using a biscuit porcelain filter which is regularly sterilised, without taking the precaution of boiling the water and practically spoiling it for drinking purposes.

The work concludes with an excellent account of the action of light on micro-organisms, and the conclusions arrived at have been very judiciously given.

In an appendix we find a concise account of the principal characters of all the micro-organisms found in water, and a couple of plates have been added. The work, which it is needless to say is extremely well produced, will be of very great interest to all medical men; while to those engaged in public health and sanitary work it will be invaluable.

The Johns Hopkins Hospital Reports. Vol. IV., No. 1. *Report on Typhoid Fever.* Pp. 167. Baltimore: The Johns Hopkins Press. 1894.

THIS volume of the Johns Hopkins Hospital Reports, dealing with the ordinary and some of the rarer symptoms and complications of enteric fever, is practically from the pen of Dr. William Osler. This fact alone is sufficient to commend the volume to the careful perusal alike of the teacher and student of medicine. Of special interest are the remarks on the cold-bath treatment. The details of this method as carried out by Dr. Osler are as follows: The patient receives a bath of from 65° to 70° every third hour until the rectal temperature registers 102·5° or under. The temperature of the bath varies somewhat with its antipyretic influence. The temperature is taken every two hours in the rectum, and if it rises above the point mentioned the bath is given. The bath is of twenty minutes' duration, unless otherwise directed. The bath-tub is wheeled to the side of the bed, around which a ward-screen is placed. The patient is, in

all instances, lifted from the bed into the bath. By a suitable arrangement the back of the patient is supported either by a comfortable padded sloping platform, or a properly adapted water-cushion. The water is deep enough to cover entirely the chest. A small quantity of whisky or a hot drink is given to the patient if thought desirable. He is lifted into the bath covered with a sheet or with a folded napkin around the loins. A cloth wrung out of ice-water is placed upon the head, and with a sponge the head and face are kept bathed in the same water. In cases with well-marked nervous symptoms these cold effusions to the head are very important. Whilst the patient is in the bath his bed is prepared with a rubber sheet, a blanket, and over this an old linen sheet. The patient is lifted out, and in a protracted case with feeble heart is dried at once and wrapped in a blanket. In other instances the patient is tucked carefully in the sheet for from five to ten minutes, and covered with the blanket, before he is thoroughly dried. The patient is given a hot drink, usually whisky and water. The temperature is taken and recorded half an hour after the bath. If at the end of three hours the temperature is again above 102.5° , the bath is repeated. The condition of the patient is carefully watched during the bath. Systematic frictions do much to counteract shivering and the tendency to cyanosis. Feeble patients are carefully watched, and the duration of the bath is reduced when there are signs of increasing weakness.

Dr. Osler in another article describes the neurosis following enteric fever known as "The Typhoid Spine." The fourth article, likewise from the pen of Dr. Osler, deals with the special features, symptoms, and complications of typhoid fever. The section dealing with "typhoid fever and malaria" is highly instructive. He says, "We do not profess always to be able to distinguish in their early stages cases of malarial fever from cases of typhoid fever. The routine treatment in all fever cases is to have careful and repeated examinations of the blood during the first two days. If Laveran's organisms are absent, malaria is definitely excluded."

The seventh article is by Dr. John Hewetson, and treats of the urine and the occurrence of renal complications in typhoid fever. The urine is examined in all cases for the presence of sugar and Ehrlich's diazo-reaction, in addition to the usual chemical and microscopical tests. Dr. Hewetson discusses the occurrence of albuminuria and hæmaturia; the pathological changes found in twenty fatal cases with especial reference to the condition of the kidneys; and the excretion of toxic products in the urine in typhoid fever.

Lastly, Dr. W. S. Thayer records two cases of post-typhoid

anæmia, with remarks on the great value of systematic examinations of the blood in enteric fever.

On the whole, we can safely say that the reader of this report on typhoid fever will be so pleased with it that he will not fail to consult it frequently again when confronted by difficulties of pathology or treatment.

Notes on Nursing in Eye Diseases. By C. S. JEAFFRESON, M.D., F.R.C.S.E. 8vo. pp. 90. Bristol: John Wright and Co. London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1894.

DISEASES of the eye have been for so long looked upon as quite a special department of surgery, that it is not surprising that we should be favoured with a manual such as the present one, containing as it does the application of certain general rules of nursing to the special exigencies of an ophthalmic hospital or practice. On the whole, we think the author, who is certainly well qualified to write on this subject, has acquitted himself well, and has produced a book which will be of service to any one working in this department of practice.

The part that deals with the management of the operating theatre, instruments, &c., is well done; but the author could with advantage have said more as to the cleansing of instruments after operations and the methods of drying them. The cleansing of the teeth of iris forceps is perhaps the most important of any one detail connected with cataract operations; whilst the drying of the hinges of small scissors, and the washing of knives and dissection needles separately from other instruments, to prevent damage to edges and points, are certainly matters to which the attention of all nurses ought to be called.

The out-patient room and its management is next described, but we are somewhat at a loss to understand what is meant by the expression "festering" shades on p. 12.

In the account of "wards" we can hardly agree with the author that less ventilation is required in an ophthalmic than in a general hospital, for in the former almost all the patients (except a few in the cataract ward) are up and about, and there is no question of their minding draughts such as might be objected to by patients in bed. The notions of an occasional "blow through" a ward (p. 13) and the keeping of a special eye-sponge in a bottle (p. 14) read almost like matters of ancient history. In our opinion there should be no such things as sponges in an ophthalmic ward, except those used for washing old people in bed. Patients should bathe their eyes with wads of clean wool, which can forthwith be thrown away.

The author might add to his causes of mishap after operation—(i.) Patients stooping out of bed to reach anything may

strike the eye on a chair or the like which has been left standing by the bed; and (ii.) old patients (on their backs), trying to pull the bed clothes up to their chins, sometimes slip the hands and strike the eye. The nurse should instruct such patients always to ask for this arranging of the clothes to be done for them.

A few clear diagrams would have illustrated "bandaging" perhaps better than the photographs included in the text. Probably the best bandage of all is one made of linen (not knitted) with tapes at each corner which join together three inches farther back. This angle goes over the ear, and thus keeps the bandage much flatter than a single tape from the middle. Another very good bandage—or at any rate the commonest, cheapest, and most comfortable in hot weather, and the best in all cases where it has to be taken off frequently, or where pressure is not required—is the simple tie bandage, a simple strip of calico, thirty-six inches long and two and a half broad, tied under the ear of the affected side and over the opposite parietal eminence. Bandaging is an important point in nursing, and we certainly think a few clear diagrams would have been a better way of putting the subject before the reader. With regard to eye-pads, one the size of a five-shilling piece is much too small, and the method given of filling gauze bags with wool is too laborious. It would be a day's work for a nurse to supply such things for the treatment of a purulent case, especially when with Gamgee tissue all that is required is to cut out a circular pad of the proper size and use it.

The author gives directions and cautions with regard to the use of eye-drops, but omits the most important precaution of all, which is, never to let the drop-bottle or pipette touch the lids, for by so doing (the same bottle being used for many cases) septic material may be conveyed from an unimportant case to cases of recent cataract.

Cataract cases are carefully considered in the next part of the book, and this part has been well done. We note, however, that the author states (p. 46) that a certain number of suppurations are bound to occur, which is undoubtedly true as a matter of practice, but most indefensible as a working theory. Further, in our opinion, under no circumstances should "suppurating" cases be allowed in a cataract ward, even if it entails the keeping of cataract cases with other patients.

We regret to read on p. 47 that the author states that he is not a great believer in the antiseptic system, which, "with all its complicated processes, is gradually being consigned to the limbo of things of the past"; but we are pleased to see that he recovers himself somewhat on p. 49 by telling his nurses "to

dress the cataract cases before the others are touched, and between each case to dip the hands and fingers into some disinfectant solution."

We think the section on electricity would have been better omitted, especially in a handbook for nurses, for a paralysed ocular muscle cannot well be affected by any current passed through the lids, and we know of no form of amblyopia, strictly so called, which can possibly be benefited by this mode of treatment. The diagrams of instruments at the end will be of great service to nurses.

Post-Nasal Growths. By CHARLES A. PARKER, Assistant Surgeon to the Hospital for Diseases of the Throat, Golden Square. 8vo. pp. 98. London: H. K. Lewis. 1894.

THIS brochure of ninety-six pages contains an account of the symptoms and treatment of adenoid growths. The subject has received so much literary attention during the last five years that we can hardly expect to find much that is novel in any small work dealing with it. But as it is written in an honest inquiring spirit, and contains a useful summary of our knowledge of the nature and management of this very troublesome class of disease, by one thoroughly familiar with it and competent to speak on it, we willingly bid it welcome.

Clinic of the Month.

Hydatid of the Brain.—Mr. O'Hara records the case of a boy, aged 6, who had been seized a year previously with severe pain in the left side of the head, accompanied by vomiting and giddiness; the pain persisted, and he lost flesh. After a time he had a fit, lasting about two hours, which left him paralysed on the right side and quite blind. In three weeks he regained his sight; and there was some return of power in the leg, and ten days later in the arm. The left side of the head was then noticed to be larger than the right, and his general health began to improve; but the headache persisted, and was worse at night. On examination, there was slight prominence in the left parietal region, with well-marked œdema of the scalp, and some pain on pressure there. There was double optic neuritis, more marked in the left eye; he was deaf on the left side; there was slight aphasia, and weakness of the right hand and arm; but sensation was unaffected. An operation having been decided upon, an incision was made over the region of the fissure of Rolando, and a wedge-shaped piece of bone removed. The dura mater bulged into the opening, and on this being incised about six ounces of hydatid fluid with numberless daughter-cysts poured out. The mother-cyst was then removed, and the cavity well washed out with boiled water. The cyst appeared to have been originally partly meningeal, partly in the brain substance; adhesions had formed between the latter and the dura mater, which prevented the passage of any fluid to the base of the brain. The cavity was about the size of a hen's egg. A drainage-tube was put in, and the wound closed and dressed in the usual way. The boy made an uninterrupted recovery, and the neuritis completely passed off. (*Intercolonial Quarterly Journal of Med. and Surg.*, No. 1, 1894.)

Glycosuria from Thyroid Feeding.—Mr. W. Dale James, of Sheffield, records the case of a medical man, aged

45, an old psoriatic, in whom glycosuria followed the exhibition of thyroid gland. The cumulative character of the symptoms and the relief immediately succeeding the abandonment of the medicine seem to be sufficiently confirmatory evidence of the toxic effect of the drug. (*Brit. Journ. of Dermat.*, vol. vi. p. 177, No. 8, 1894.)

Sulphocarbolates in Purpura.—Dr. Sansom reports a case of purpura hæmorrhagica with acute pemphigus, probably induced by influenza. The patient was a girl of 12, and was in a critical state when admitted to hospital. Extravasations of blood were seen about the eyelids; there was much oozing of blood from the mouth; hæmorrhagic stains and spots were observed on the skin covering the chest, abdomen, and back, as well as the upper and lower extremities. Bullæ (as of pemphigus) containing deeply blood-stained fluid were present on the left ala nasi, over the abdomen, the arms, and legs. The tongue, generally stained darkly, presented several small bullæ over its dorsum and sides; similar blebs were seen within the lips, all containing blood-stained fluid, some bursting and liberating their contents to produce oozing from the mouth. There was vomiting, the vomit being blood-stained; and much blood was voided with the evacuations. The urine contained a trace of blood. The pulse was 124, the respirations 34 per minute; cough occurred, with deeply blood-stained sputa; bronchitic râles were heard over the chest front and the base of the right lung. The temperature on admission was 98·8° F., but rose on the day following to 103·8° F. Half-drachm doses of sodium sulphocarbolate were administered every four hours. During the next five days the signs were little changed. After nine days, though there were indications of some general improvement, hæmorrhagic extravasations were observed on each fundus oculi, with signs of double optic neuritis. There was, however, continuous amendment, though the temperature rose on one day to 105° F., and on the next to 104° F. The patient was discharged quite well after having been in the hospital for thirty-six days. It was thought probable, considering the mode of onset and the accompanying pyrexia, that the disease in this case was due to an infective agency. Collateral evidence showed that influenza might be attended with the signs and symptoms noted. In another well-marked case the administration of sodium sulphocarbolate in half-drachm doses every four hours for a protracted period had been practised, and the patient completely recovered. Encouraged by this, Dr. Sansom adopted the like plan of treatment in the case now brought forward, and the recovery was equally satisfactory. (*Lancet*, vol. i. p. 1375, 1894.)

Supra- and Sub-diaphragmatic Abscess.—Professor J. G. Adami, of Montreal, after alluding to the silence of even the best of our most modern text-books upon the subject of sub-diaphragmatic abscess—a silence out of proportion to its diagnostic and clinical interest—records the following rare form of the disease: A man of 65 was received into the General Hospital, under Dr. Molson, upon October 3rd, in a state of semi-collapse. All that could be ascertained as to his previous history was that for the past four or five days he had been suffering from pain in the epigastrium, thirst, restlessness, and pains in the joints. He died within twenty-four hours. The pulse was almost imperceptible, the area of cardiac dulness was enlarged, and the heart-sounds scarcely heard. Over the liver in front there was acute pain upon pressure. At the necropsy, the following were the more important conditions observed. The pleural cavities contained about eight ounces of clear serum. The lungs were very œdematous, and in either apex were found evidences of an old and cicatrised tuberculous condition. The pericardial cavity was enormously distended; the fluid was milky, with numerous flocculi floating therein. The lower and inner half of the parietal pericardium was thickened; and upon being cut into, down upon the diaphragm, an abscess cavity was exposed lying between diaphragm and pericardium, of irregular shape, and containing thick creamy pus. A large abscess was found beneath the diaphragm, having in its centre the abdominal end of the œsophagus and the cardiac end of the stomach. This extended to the left edge and under the surface of the left lobe of the liver on the one side; on the other side it almost touched the splenic flexure of the colon and the surface of the spleen. It was filled with a thinner greyish pus, and communicated through the diaphragm with the supra-diaphragmatic abscess. The cardiac orifice of the stomach was discovered to be greatly stenosed and ulcerated. A ring of cancerous growth of what proved to be a columnar-celled carcinoma was then found implicating the gastric mucous membrane, and forming a ring varying in breadth from 2 to 3 cm. around the cardiac orifice; the growth extended a short distance up the œsophagus. The history of the case was evidently one primarily of cancer of the cardiac orifice of the stomach, leading to stenosis, ulceration of the cancer, and extension of the septic process through to the serous surface of the organ; or, it may have been, perforation above the stenosed area by a fish bone or other fine spicule, the passage closing behind the foreign body; suppuration around the termination of the œsophagus, leading to a sub-diaphragmatic abscess; extension of the process through the diaphragm; inflammation of the parietal pericardium; extension through the pericardium;

purulent pericarditis; death. (*Montreal Medical Journ.*, vol. xxii. p. 664, 1894.)

Taches Bleuâtres.—The peculiar bluish stains known as *taches bleuâtres* have been recently studied by Sir Dyce Duckworth. They occurred in a young man suffering from pleuro-pneumonia. There was no suspicion of enteric fever, and no pediculi were met with. Sir Dyce Duckworth is not prepared to accept the view that the sole cause of the bluish stains are pediculi pubis. They may, he states, be expected to occur in typhoid fever and some other feverish disorders, quite independently of these parasites. (*Brit. Journ. of Dermatol.*, vol. vi. p. 84, No. 3, 1894.)

Intestinal Obstruction from Chronic Appendicitis.

Dr. Lauder Brunton and Mr. Watson Cheyne record the case of a man of 35, in whom intestinal obstruction, due to constriction of the bowel, followed on recurrent appendicitis. Thirteen days before the operation described he was seized with sudden acute griping pain in the abdomen, the attack lasting about an hour and then passing off. Similar attacks occurred at varying but frequent intervals, the bowels being, however, open, though imperfectly. Thirty-six hours before the operation he took a dose of castor-oil, which set up intense pain, and was followed by complete obstruction, and about twenty hours afterwards by extreme collapse. About thirty hours after the castor-oil he had fæcal vomiting, and when put on the table he was practically moribund, and his pulse could not be felt. The diagnosis was a narrowing of the bowel from the gradual contraction of fibrous tissue resulting from the repeated inflammatory attacks, and this was found to be correct at the operation. The abdomen was opened; the appendix, which encircled the ileo-cæcal valve, was removed; and the adhesions were cut and torn through, till the contents of the small intestine could be readily squeezed into the large. On the completion of the operation, during which ether was administered, the pulse could be felt. The patient lay in an almost pulseless condition for about thirty hours after the operation, without vomiting however, and without any marked pain; then he had two copious and very offensive stools. After that he was very collapsed, but he soon recovered; and when he was seen thirty-six hours after the operation, his pulse had greatly improved. His subsequent recovery was uninterrupted, and he has since remained well. The chief difficulty in diagnosis was from internal strangulation, but the history of the case and the general symptoms seemed to point conclusively to constriction of the bowel, as was found on operation. The complete success following division of the adhesions is of great interest from the

fact that this condition is generally irremediable after localised peritonitis, on account of its extent and the injury to the intestinal wall which usually follow attempts at separation of these adhesions. The collapsed condition of the patient was clearly due to septic intoxication from absorption of poisonous materials from the intestine, and affords strong support of the view held by some authorities that a considerable amount of the trouble after strangulated hernia is often due to similar absorption. (*Lancet*, vol. i. p. 1135, 1894.)

Paralysis Agitans sine Agitatione.—Dr. Frederick Peterson presented at a meeting of the New York Neurological Society a wheelwright, aged 60, who displayed characteristic masklike rigidity of the face with the attitude of paralysis agitans—the stooping shoulders, bent back, crooked elbows and knees, and characteristic position of the hands and fingers. But there was no tremor anywhere in extremities or head. The voice had the monotony and something of the festination of the speech of paralysis agitans. There was at times a sort of propulsion in walking. (*Medical News*, Philadelphia, vol. ii. p. 46, 1894.)

Bromide Eruption.—A case of severe bromide eruption in a child of fourteen months is recorded by Mr. Jonathan Hutchinson. Doses of bromide from two to six grains had been given every four hours for three weeks. The eruption consisted of thick tuberos papules, which had formed on the face and limbs. There were none on the trunk. Those on the legs were ulcerated, and covered with thick pus crusts. The skin between the tubers was, as usual, quite healthy. In reference to the fact that the eruption had not been immediately arrested by leaving off the drug, Mr. Hutchinson remarks that a certain time must be allowed for elimination. In some cases, however, if the drug have been used for a considerable time, the process of morbid growth is not stopped by removal of the exciting cause, but goes on to a fatal termination. (*Medical Press and Circular*, vol. cviii. p. 325, 1894.)

Cysticercus of the Skin.—Dr. D. Galatti records in the *Archiv. Ital. di Pediatria* a case of the very rare occurrence of cysticercus of the skin, in a girl of 10. The patient presented a swelling, the size of a nut, about two fingers' breadth above the umbilicus. It was of cartilaginous consistency, situated between the skin and subjacent muscle. The diagnosis of such cases can only be made after treatment, which is complete extirpation of the tumour. (*Brit. Journ. of Dermatol.*, p. 187, No. 6, 1894.)

Palatal Ulceration in Tabes Dorsalis.—Dr. Letulle records the case of an ataxic (and syphilitic) patient, who had formerly suffered from perforating ulcer of the foot, and who recently developed perforation of the palate, accompanied with loss of the teeth and total anæsthesia of the whole mouth. The perforation communicated with the maxillary sinus, but it had never given issue to pus. Dr. Lermoyez has also met with two tabic patients who presented perforations of the palate that had been produced spontaneously and with suppuration. (*Medical Week*, vol. ii. p. 355, No. 20, 1894.)

Subacute Unilateral Bulbar Paralysis.—Dr. Wiener records a case of this rare kind in a youth aged 17. He had previously suffered from tuberculous glands in the neck, which had been removed. Deviation of the tongue was accidentally discovered, and shortly after this it was observed that he became hoarse and coughed with difficulty, and had some trouble in swallowing, these symptoms all developing in the space of ten days. On examination his tongue deviated markedly to the right when protruded; there was distinct atrophy of the middle of the right half of the tongue; and the response to faradism was much weaker on this than on the other side. The right side of the soft palate was paralysed; sensation and taste were normal. There was great difficulty in deglutition. He would choke and cough, but after several attempts he would succeed in getting the nourishment down; solid food was taken much more readily than liquid. The voice was hoarse and low-pitched owing to paralysis of the muscles of the right side of the larynx. The sterno-cleido-mastoid and trapezius on the right side were also paralysed. The functions of all the other cranial nerves were normal, and the reflexes were all normal. His heart and lungs were normal. He died some two months later, the only change being that his pulse became progressively more frequent, and that he was increasingly liable to attacks of respiratory failure. On post-mortem examination there was found no gross lesion to the naked eye, but microscopical examination of the medulla revealed slight degeneration of the vagus and vago-accessory nuclei, more marked degeneration of the hypoglossal nucleus, and almost complete degeneration of the column known as the respiratory bundle; these changes existed only on the right side. Of the nature of the lesion the author does not express an opinion beyond stating that there was no evidence that it was tuberculous. (*New York Med. Journ.*, vol. lx., No. 2, 1894.)

Peripheral Neuritis from Tea-drinking.—Dr. Spratling describes the case of a man aged 30, healthy, who had suffered from mild attacks of subacute rheumatism. He did

not use alcohol or tobacco in any form, and was very susceptible to alcohol, half an ounce of any light wine causing flushed face and noticeable exhilaration. In November 1892, not having previously been a tea-drinker, he began taking half a pint of strong tea at noon and again at four o'clock, and he gradually increased the quantity up to three pints daily. Six weeks after beginning the tea, he had a mild tingling in the right hand, extending up the forearm. Small blebs appeared on the dorsal surface of the first and second fingers; the skin of the entire hand was slightly hyperæsthetic, and the temperature sense was impaired; the heart's action was feeble and irregular. The tea was stopped, and suitable directions as to diet and exercise were given; and in six weeks he was perfectly well. In January 1894 he had a second attack, having resumed the tea-drinking for three weeks. Dull, boring, burning pain in the right wrist was the first symptom. This was followed by pains of the same character in the right shoulder, spreading over the scapula as far as the spine, and running down through the axilla, along the course of the median nerve as far as the elbow; the brachial plexus was involved, and pressure applied to any part of the axillary space caused intense pain. The median nerve was especially involved; pressure over it at any point could not be borne; both of the main nerve-trunks below the elbow suffered. When the hand was put in water at a temperature of 50° F., the pain was so great that it had to be withdrawn, the surface of the hand, especially the dorsal portion, becoming painful to the touch. A group of three small blebs appeared over the carpo-metacarpal articulation of the first finger, and a more numerous group developed just below the styloid process of the ulna. Small hard deep-seated nodules appeared between the first and second phalanges of all the fingers; on making pressure over these, or on pinching or pricking any part of the skin, pain would not be felt for two seconds or more, then it would grow in intensity, and after attaining its height gradually subside. Picking up or handling firm substances was accomplished with difficulty. The muscular weakness was not, however, in proportion to the sensory disturbances. Entire abstinence from tea, fresh air, good diet, and general tonics caused him to completely recover in six weeks' time. (*Med. Record*, New York, July 28, 1894.)

Extracts from British and Foreign Journals.

Treatment of Gutta Rosea.—Dr. H. S. Purdon recommends the following treatment for “acne rosacea.” The dietary and any gastric derangement having been attended to, this local plan gives good results: Bathe the affected parts with spirit of horseradish, say in the morning; at bed-time rub pretty firmly into the diseased parts a pomade of sulphur combined with a small quantity of carbolic acid. Sometimes good results are obtained by substituting the green iodide of mercury (ten grains to the ounce) for the carbolic acid. All comedones are to be squeezed out with an extractor. As a “reducing” agent, ichthyol is often better than the sulphur. Dr. Unna has informed the writer that he has never recommended ichthyol in acne, but only in rosacea, which is never, in his opinion, a sequence of real acne, but of seborrhœic eczema, the tubercles of which are those of a special folliculitis. This common mistake explains, perhaps, the use by some dermatologists of ichthyol in acne. (*Dublin Journ. of Med. Science*, vol. cclix. p. 402, 1894.)

Biting the Nails.—Dr. Bérillon, as the result of an extensive inquiry, confirms his previously expressed opinion that onychophagia and similar habits are generally associated with degeneracy. The frequency of onychophagia varies greatly in different institutions. In some, two or three out of every ten children are addicted to biting their nails. A careful examination invariably reveals signs of degeneracy. The children are usually less healthy in appearance than others, presenting deformities of the skull and anomalies of the teeth and ears. In such subjects the teachers notice a marked antipathy to physical exercises and games requiring effort. They write poorly, and show marked inferiority in respect of manual dexterity. They are slow to learn; they are incapable of continuous application; in fact, they always exhibit an inferiority in some direction or other. The disciplinary measures usually resorted to to correct bad habits are powerless in this; in the majority of cases only hypnotic suggestion seems to be

capable of effecting a cure. The habit of biting the nails sometimes persists until late in life. (*Medical Week*, vol. ii. p. 357, No. 20, 1894.)

Hints on the Treatment of Diabetes.—Dr. Solomon Solis-Cohen, writing on the different forms of diabetes mellitus, gives this suggestive advice with respect to treatment: Examine the urine frequently, and administer alkalis freely if this excretion be too acid or if the sugar have diminished suddenly. As constipation is a precursor of diabetic coma, it must be prevented by giving phosphate of sodium in doses according to the effect produced. This may be combined with $\frac{1}{4}$ of a grain of arseniate of sodium, a useful expedient. Strontium bromide in doses of twenty grains may be given in cases of diabetes in the gouty and obese. It is a stomachic tonic, promotes digestion, relieves flatulence, increases general nutrition, and keeps the blood moderately alkaline. Strontium lactate can be alternated with the strontium bromide. From time to time arseniate of strychnine, $\frac{1}{128}$ of a grain six times daily, is given as a general nervous tonic and stimulant. Dr. Solomon Solis-Cohen believes in codeine; and, following Sir Benjamin W. Richardson, he gives it in solution with hydrogen dioxide. Thus:—

R Codeinae Phosphatis gr. ij.
Spiritus Rectificati ℥iv.
Acidi Phosphorici Diluti ℥ij.
Glycerini ℥vj.
Solutionis Hydrogen-dioxiidi (10 vol.) ad ℥iij. Misce.

Two teaspoonfuls to be taken in three ounces of water. With this is enjoined an alkaline course, arsenic being sometimes added. Hydrogen dioxide, ozonic ether, and oxygen have been advocated on the assumption that they bring about increased oxidation of the sugar or secondary products circulating in the blood. Dietetic treatment of course precedes medication. Don't try to cut off bread and potatoes altogether. Gluten bread is not reliable, and not palatable. Try to make up by fats for the exclusion of the starches. Keep your patients warm and protected; cold is their greatest enemy. Examine the urine for organic acids, and keep the blood alkaline. In the matter of diet be strict enough to diminish polyuria and glycosuria, and if possible secure their disappearance, *provided* you can at the same time keep the patient comfortable, but under any circumstances *make the patient comfortable*. (*Therapeutic Gazette*, p. 290, No. 5, 1894.)

A Good Hardening Agent.—Mr. McAdam Eccles, of the West London Hospital, has been much impressed with the

extremely powerful and rapid hardening effect of formic aldehyde in the preparation of microscopical sections. He is thus led to think that formic aldehyde (in 40 per cent. solution for very soft tissues, in 20 per cent. for firmer, and in 10 per cent. for quite firm material) acts as a most rapid and satisfactory hardening reagent. It does not render any tissue brittle as spirit does; and it in no way prevents a stain from acting well on the sections. It is therefore a useful reagent in pathological and histological work. (*Brit. Med. Journ.*, vol. i. p. 1124, 1894.)

Diagnosis of Sporadic Variola.—Dr. James Niven, Medical Officer of Health for Manchester, in a note on the spread of infectious disease by vagrants, emphasises the importance of distributing clear instructions for the recognition of slight cases of smallpox. No amount of trouble can be considered wasted that aims at extending the recognition of this disease. It is a cardinal difficulty, both in lodging-houses and in private dwellings, perhaps more so in the latter than in the former. The frequent mistakes between smallpox and chickenpox need not be made if we attend to the following rules: (1) Adults rarely have chickenpox. If two adults appear to have chickenpox in one house, the medical attendant should suspect smallpox. (2) Properly vaccinated children under seven years of age very rarely have smallpox. It is curious how people forget to apply this crucial test by looking for the vaccination marks. (3) With few exceptions, children attacked with chickenpox experience no initial sense of illness. With smallpox they almost always have well-marked illness. (4) The distribution of the eruption is different. In slight smallpox the eruption is almost always on the face and limbs, sparing the abdomen and front of the chest. In chickenpox there are generally a large number of pocks on the front of the chest and abdomen. (5) The eruptions are different in character. To mention no other points of difference, the eruption of smallpox is tolerably uniform in size and round in shape. The eruption of chickenpox is very variable in size, and many of the pocks, on the body especially, are of an oval shape. (6) The eruption of chickenpox is itchy in a great many instances; that of smallpox is, at first, not so. Only long experience enables one to tell at a glance which disease one has probably to deal with, but with due care no one need go wrong in arriving at a differential diagnosis. (*Lancet*, vol. ii. p. 192, 1894.)

Lævulose in Diabetes Mellitus.—Dr. Hale White having made trial of lævulose in eight cases of diabetes which seemed suitable for the purpose, he thus summarises his conclusions: (1) If large amounts of lævulose are given, some of it appears in the urine. (2) In none of these cases did lævulose have the

pernicious effect, often seen with ordinary carbohydrates, of increasing the output of sugar beyond the extra quantity given. (3) When lævulose is given, the excretion of sugar is usually increased, but it may be diminished. (4) In most cases much less sugar is passed in the urine after giving lævulose than would have been excreted if the previous excretion of sugar had remained stationary and all the lævulose had appeared in the urine. (5) There is some evidence that the larger the amount of lævulose, the less will be the increase of sugar in the urine. (6) While therefore some of these cases show that lævulose can be better utilised than dextrose, none of them show that dextrose can be utilised better than lævulose. (7) None of the patients felt worse for taking lævulose; indeed, some felt better, and gained in weight. (8) The effect of lævulose on the excretion of urea is unimportant. (9) The amount of urine passed when lævulose is given varies with the quantity of sugar passed. (*Guy's Hospital Reports*, vol. 1., 1894.)

Intestinal Antisepsis.—The following remarks occur in an editorial article on intestinal antiseptics: A special impetus was given to this branch of therapeutics by the introduction by Bouchard of beta-naphthol. This drug and its allies—hydro-naphthol, naphthalin, and alpha-naphthol—are powerful antiseptics, and at the same time non-poisonous, owing to their insolubility. Salol, which passes through the stomach unchanged, but in the small intestine splits up into carbolic and salicylic acids, is especially useful in the so-called “duodenal indigestion,” where excessive fermentation in this part of the gut causes pain and distension some hours after food, with irregular action of the bowels and frothy offensive stools. In the same class of cases betol may be used, which is broken up by the succus pancreaticus into beta-naphthol and salicylic acid, substances which are more powerfully antiseptic and are also innocuous. Carbolic acid, the sulpho-carbolates, aseptol, creasote with its derivative guaiacol, iodoform, chlorine, benzoate of sodium, resorcin, thymol, and boric acid may all be useful in special cases, but as intestinal disinfectants they labour under the disadvantage either of being poisonous or of being too soluble and not reaching the intestine. In many cases it is advisable to complete the cleansing of the tract by irrigation of the lower bowel with a solution of boric acid, salicylate of sodium, or other antiseptic. As regards diet, it has been proved that on a milk regimen intestinal putrefaction is less active than when the food is more largely proteid, which fact lends rational support to the general custom of relying chiefly on milk in the feeding of patients suffering from typhoid fever and Bright's disease. Broadly speaking, the condition which calls for the

administration of these remedies is abnormal decomposition in the intestine. Obvious symptoms of this are diarrhoea, with excessively offensive and, perhaps, fermented stools, and flatulence with abdominal pain and distension. More obscure symptoms are caused by the entrance into the circulation of the poisons generated in the intestines, and comprise anæmia, malnutrition, vomiting, headache, and other nervous manifestations. To the surgeon, the application of this treatment lies in the cleansing of the gut preparatory to enterotomy, which is usually aimed at by the administration of a purge only. An intestinal antiseptic and the administration of a food admitting of the minimum amount of decomposition—such as sterilised milk—are all that is required wherewith to meet the disorders caused by simple putrefaction in the alimentary tract, and this treatment may claim to be specific in those cases of enteritis due to consumption of food already “on the turn.” In a much larger number of diseases, however, their action is confined to lessening the amount of poison formed, and palliating its effects. Contradictory results have been recorded of the antiseptic treatment of cholera and dysentery; but in typhoid fever it is admitted that the diarrhoea, offensiveness of stools, and meteorism are controlled by antiseptics. This alone would render them invaluable in many cases. More than this, however, is claimed by many recent writers of the highest authority for the antiseptic treatment of typhoid fever. Different observers who have used calomel, pure carbolic acid, creasote, chlorine, thymol, naphthalin, beta-naphthol, and other antiseptics, maintain that they succeed in lessening the mortality of typhoid, curtail the fever, shorten the duration of the disease, and diminish the number of its complications. We must wait for further records to establish their exact value, and to determine which of the long list of antiseptic drugs is best adapted for use in enteric fever. The naphthol group and salol have proved very useful in tuberculous enteritis, but from its special action on tubercle bacilli it might be expected that most good would be obtained from the use of guaiacol, which, suspended in cod-liver oil, has helped in the arrest of several such cases. Dr. William Hunter has found, from observation of the large amount of aromatic sulphates excreted in the urine, that pernicious anæmia is characterised by excessive intestinal decomposition. He supposes that a hæmolytic poison is thus generated, and recommends intestinal antiseptics as the rational treatment of the disease. (*Brit. Med. Journ.*, vol. i. p. 870, 1894.)

Treatment of Graves' Disease.—In a criticism of the treatment of Graves' disease with digitalis, M. Joffroy points out very pertinently that tachycardia is but a symptom of the

whole disease, and therefore digitalis by acting on the heart does not get at the seat of the main mischief. He prefers strophanthus. He rejects belladonna as unreliable, strongly believes in the administration of bromide of potassium in large doses, and would rather use antipyrine than quinine in treating the temperature. He regards a douche to the thyroid of water—first lukewarm and then quite cold—as most valuable. Ice has the danger attached to it of causing respiratory trouble. He strongly recommends electricity, either galvanism or faradism. The parts to which electricity is applied are the heart, the belly, the thyroid body, and the back of the neck. These points are touched one by one with the negative pole; the positive is to be placed on the back of the neck. Injections of tincture of iodine or of iodine in iodide have been employed. In such procedures the strictest antiseptic precautions must be followed, and the greatest care taken to prevent the puncture of an artery or vein. The quantity of the solution injected should in every case be small. Much pain and difficulty of breathing are often the result of the injections. The goitre has been known to inflame and even to suppurate, and cases of sudden death after this treatment are on record. Thyroidectomy has been carried out by Heron Watson, Macnaughton, Ollier, and Tillaux. Myxœdema is the result, but at any rate there is a cessation of the symptoms of exophthalmic goitre. Better results are obtained by excision of one lobe. Such an operation is followed by amelioration of all the symptoms. In total extirpation it is best to leave the capsule, as Biondi has pointed out that the parts of the thyroid lying at its periphery are really embryonic thyroid glands, and these take on the function of the whole organ. (*Progrès Médical*, vol. xix., No. 13, 1894.)

The Pigmentation of Amenorrhœa.—Dr. A. Lawrence, of Bristol, directs attention to the occurrence of pigmentation in ordinary amenorrhœa, and to such an extent as in some cases to lead to the error of diagnosing the condition as Addison's disease. He thinks that in pregnancy the absence of the catamenia has more to do with pigmentation than the presence of pregnancy; in other words, he believes that the deposition of colouring matter is more likely due to the non-elimination of something that ought to be got rid of at a menstrual period than to the altered state of the blood in pregnancy. The occurrence of pigmentation in the amenorrhœa of non-pregnant women he has noticed in several cases; and it is important, not only to enable us to avoid attributing it to a serious illness, such as Addison's disease, but also when the pigmentation is mammary, to guard us from believing it to be due to pregnancy. As a rule, the pigmentation in non-pregnant amenorrhœa

occurs about the face, neck, or hands; but it also does affect scars, just as one sees in pregnancy. (*Bristol Med. and Chirurg. Journ.*, vol. xii. p. 104, No. 44, 1894.)

The Rational Treatment of Urticaria.—Dr. Stephen Mackenzie says that the treatment of urticaria resolves itself into the following points: (1) to discover the causes of the disease, and when discovered to remove them if possible; and (2) to mitigate the effects. In searching for the causes we must not leave out of sight local irritations. The possibility of fleas, bugs, pediculi, &c., should be remembered; and irritating clothing must be replaced by soft and soothing garments next to the skin. As regards indirect irritants, in some cases these are clearly indicated as the attack promptly follows some unusual article of diet. It is too late to expel these from the stomach; but the peccant matters may still be in the intestinal canal, and we should therefore prevent further possibility of absorption by giving an efficient aperient. In many cases the particular cause cannot be discovered, so that the patient ought to be carefully instructed to observe his other idiosyncrasies in this respect. Some writers have pointed out that the articles of food are nearly all luxuries and not necessities of diet. Acute cases need scarcely any treatment. A simple and bland diet, a stomachic, and a warm bath are all that is needed. In more obstinate cases we have to employ remedies which soothe the skin and lessen the excitability of its nerve plexuses. Of much service is a nightly bath lasting fifteen minutes, to which is added starch, or potassa sulphurata—two ounces to thirty gallons of water. After the bath the body should be rubbed with a lotion of carbolic acid and glycerine or smeared with salicylic acid vaseline. In the severe form, known as *urticaria gigas*, Dr. Mackenzie has found the greatest benefit from swathing the affected parts with lint soaked in glycerine of lead (one ounce to twenty of water). Of internal remedies, antipyrin yields the greatest benefit; 20 to 30 grains may be given at bedtime. Atropine is sometimes very beneficial, in doses of $\frac{1}{120}$ to $\frac{1}{60}$ of a grain. Colchicum has been found of service in cases which appear to be gouty or due to defective action of the kidney. (*Brit. Journ. of Dermatol.*, vol. vi. p. 75, No. 3, 1894.)

Causes of Pruritus Pudendi.—The following classification of the causes of vulvitis pruriginosa is given by Sängner in the *Centralblatt für Gynäkologie*:—*Endogenetic Causes*: (1) *Hæmatogenetic*; including substances which are found in the blood in certain diseases (icterus, chronic nephritis, diabetes), and which cause itching by their action on the nerve-endings. Chemical substances like morphine, iodoform, and alcohol act in a similar

way when introduced into the blood. (2) Circulatory passive congestion of the venæ pudendæ, of the hæmorrhoidal veins, or of the pampiniform plexus, caused by diseases of the heart, by pregnancy, by hæmorrhoids, or by retroflexion or tumours of the uterus. (3) Hæmatogenous skin affections such as urticaria, erythema, and herpes. *Exogenous Causes*: (1) Secretory and chemical—as excessive activity of the cutaneous glands of the vulva; continued contact with normal or decomposed urine; pathological secretions of vulva, vagina, and uterus; gonorrhœal or desquamative vaginitis; cervical endometritis, cancer, or tumours of uterus; catarrhal and purulent discharges from the rectum. This class of causes produces the most intense form of vulvitis pruriginosa. (2) Parasitic—animal parasites: pediculi, oxyuris vermicularis; vegetable parasites as leptothrix, leptomitus, probably also oidium albicans. Also in a more specific manner, gonococcus; smegma bacilli and dirt bacteria; the various microbes of the skin and vagina; and, as causes of secondary infection of wounds produced by scratching, streptococci and staphylococci. (3) Mechanical—(a) Primary: masturbation, excessive washing and rubbing; the use of unclean or infected sponges. (b) Secondary: rubbing, scratching, &c., of the affected parts. (4) Thermal—The influence of temperature is illustrated by the increased itching when the patient is in bed or in a warm bath. (*Medical Chronicle*, p. 57, No. 1, 1894.)

Antitoxin Treatment of Diphtheria.—Katz has brought before the Berlin Medical Society, in an important paper, the results of the treatment of diphtheria by antitoxin as carried out in the wards of Professor Baginsky. The fluid used was that prepared by Aronson for his experiments on animals. It was a yellowish slightly-opalescent fluid, with a faint odour of phenol, and was found by experiment to be sterile. Katz began with doses of 3 to 5 ccm. directly after admission, followed by the injection of a similar amount next day. Later this was increased to 10 ccm., and now in very severe cases as much as 20 ccm. The ordinary treatment by sprays, insufflations, &c., was carried on as formerly, and tracheotomy and intubation done when indicated. From March 14 to June 20, the period during which this treatment was carried out, one hundred and twenty-eight children were injected with antitoxin. These represented with a few exceptions the total diphtheria admissions for that period, and in all Löffler's bacillus was identified by cultivation. The result was a total of 17 deaths, representing a mortality of 13·2 per cent. In the same time of the preceding year a death-rate of 37 per cent. was registered. The cases are grouped into four classes: (a) slight, where the constitutional symptoms

are absent or slight, and the membrane is restricted; (b) moderately severe, in which the throat is extensively covered and the glands affected; (c) very severe, when the nose and other parts are involved, and the general symptoms grave; and (d) cases to which septic processes are superadded. Of the first class there were 47 cases, which all recovered; of 35 of the second, 1 died; the third class had 42, of which 31 recovered, 11 died; while the 4 septic cases all died. With regard to the general effects produced by the remedy, Katz states that no unpleasant or injurious consequence was observed. It was of course impossible to say, when a renal inflammation occurred in the course of treatment, whether it would have set in without an injection; but when it was present no apparent influence was exerted on it. Severe examples of nephritis did not show after the injection: on the contrary, some of them improved considerably. No action upon the heart was observed. A rash appeared in 9 cases, starting chiefly in the needle puncture and lasting only a short time. The membrane in the pharynx was not much influenced, one way or other; but extension into the larynx was observed in no case after admission of the patient into hospital. There was no effect upon the course of the glandular swelling. The temperature and pulse-rate were scarcely altered, and complications such as paralyses of various parts were not wanting. Death took place from the causes generally observed in such cases, such as extension of the membrane downwards, and heart weakness. Reviewing the results as a whole, Katz thinks that the favourable course taken by the cases, in spite of severe throat affection, points to the treatment by antitoxin as being of some value. On the suggestion of Aronson, a weaker fluid was employed for the purposes of immunisation. Of 72 children injected, 8 sickened after a time, all being however relatively mild cases, making a speedy recovery without complication. This experience has shown that much larger doses are necessary for immunisation if the result is to be better. (*Berlin. klin. Wochenschr.*, No. 29, 1894.)

Prescriptions.

FOR LICHEN URTICATUS.

R Spiritûs Rectificati,
Saponis Mollis, āā ʒj.
Olei Cadini ʒv.
Aquæ ad ʒx.

Misce et fiat lotio.

To be applied night and morning.

FOR PITYRIASIS CAPITIS.

R Sulphuris Præcipitati ʒiss.
Adipis Lanæ Hydrosi ad ʒij.
Misce et fiat unguentum.

To be applied to the affected parts every second day.

FOR HÆMOPTYSIS.

R Ergotini gr. xx.
Acidi Gallici gr. xl.
Syrupi Tolutani ʒiv.
Aquæ ad ʒiv.

Misce et fiat mistura.

One teaspoonful to be given every two or three hours.

FOR INTERCOSTAL NEURALGIA.

R Linimenti Belladonnæ ʒj.
Linimenti Chloroformi ʒiv.
Linimenti Opii ad ʒiij.

Misce et fiat linimentum.

To be well rubbed over the painful area.

FOR ILL-NOURISHED CHILDREN.

R Extracti Malti,
Olei Morrhuæ,
Syrupi Ferri Phosphatis Compositi (Parrish),
āā ʒss ad ʒj.

Misce et fiat mistura.

To be given three times daily after food.

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Department of Public Health.

CHOLERA IN EUROPE IN 1892, AND ENGLISH CHOLERA ADMINISTRATION.

BY R. THORNE THORNE, C.B., M.B., F.R.S.

*Being an Extract from the Report of the Medical Officer of the Local Government
Board for 1892-93.*

Cholera in Europe.—The invasion of Europe by cholera in 1892 was an event which largely occupied the attention of the Medical Department of the Local Government Board during the year, and the story of the origin and progress of the diffusion of the disease is set out in an appended report¹ by Dr. Barry. From this account, which deals with the countries affected in the order of the date of their attack, it will be seen that cholera, in its extension westward, had three centres. The first was Paris, in the outskirts of which cholera was recognised early in April 1892. The disease in the neighbourhood of the French capital may probably be regarded as a recrudescence of former cholera, and its extension took place down the valley of the Seine, and in the direction of Belgium. The second centre was Asiatic Russia, which must be regarded as having received its infection as the result of an exceptional epidemic of cholera in British India during 1891; this being followed in the early months of 1892 by a recrudescence along the Indo-Afghan frontier. The disease first travelled in a westerly direction through Afghanistan, and then, taking a north-western course through Persia, reached Russian Turkestan, through which it travelled with a hitherto unknown rapidity, following the new

¹ Not reproduced.

line of railway from Samarkand to Oozoun Ada on the eastern shore of the Caspian. Thence it followed the line of the Caspian Sea traffic, reaching Baku on the west and the mouth of the Volga on the north. By means of a rapid extension of the disease up the Volga on the one hand, and into the Caucasus on the other hand, the disease was introduced into Europe, and before the end of the year it had already extended to all but six of the Governments comprised in European Russia. The third extension westwards was, so far as is known, not concerned with the European invasion of 1892. Cholera prevailed in Arabia in 1890-91, when a diffusion took place along several pilgrim routes. Early in the summer of 1892 the disease was conveyed across to the Somali coast of Africa; and later in the year it was re-imported thence into Arabia.

Cholera: (a.) In Russia.—Dr. Barry gives a detailed account of the extension of cholera through the various provinces both of European and Asiatic Russia. By the close of 1862, 331,077 attacks and 151,626 deaths had been recorded in European Russia, and 134,758 attacks with 69,423 deaths in the Caucasus; the areas suffering most being the northern Governments of the Caucasus, the Don Cossack region, and the districts riparian to the Volga. The Government of Lublin (Poland) also suffered heavily. In point of date the heaviest incidence of the epidemic was during the period between mid-July and the end of the first week of September; but the disease was still prevalent in parts of Russia at the close of the year. The records from Russia in Asia showed 89,199 attacks and 46,841 deaths. But, as regards many parts of the Russian Empire, it has to be noted that the actual statistics available fail to indicate the true extent of the epidemic; accurate records being at times quite unprocurable owing to riots and other causes. The story of Russian cholera includes some remarkable records of the manner in which water-ways serving as lines of human traffic served also as carriers of cholera; it also gives details, some tragic in their outcome, which emphasise anew the power for mischief of a cholera infected water when used for human consumption.

(b.) In Turkey in Asia.—In much the same way Dr. Barry traces the importation into, and movements of cholera within,

the northern provinces of Turkey in Asia, where the places most affected were Erzeroum and Trebizond.

(c.) *In France.*—The first recognised attacks of cholera in France took place in a public institution at Nanterre in the north-western outskirts of Paris, either at the end of March or early in April 1892; they were rapidly fatal, and the disease extended to a considerable number of the inmates. Its origin remains obscure; but it is held by leading French authorities that it was probably a recrudescence of the cholera of a former year, and that it must have reached the institution in question from the outside. During the months of April, May, and June the disease spread through the north-western, western, and northern suburbs of Paris, and later on it nearly encircled the capital. The distribution of cholera in the suburbs is worthy of note; the excess of its incidence on the different communes having distinct relation to the extent to which the Seine, from which their water-supply was drawn, was polluted by the sewage of Paris. Of the 48 communes provided with Seine water 28 were invaded with cholera, but the inhabitants of those communes drawing their supply at a point below the main outfall sewer died of that disease at a rate nearly fourteen times as great as those who were supplied from the same river at a point above Paris. Paris itself became affected in July, the disease assuming epidemic proportions between mid-August and mid-October, and maintaining itself more or less until the end of the year.

According to reports issued by M. Henri Monod, 951 deaths from cholera occurred in the environs of Paris between March 31 and the end of 1892, and 907 in Paris itself. It is, however, noteworthy that the 1892 cholera prevalence in Paris was the least fatal of all the seven epidemics which have occurred there during the 61 years 1832-92; the cholera death-rate per 10,000 having continuously fallen from 234·5 in 1832, to 3·6 in 1892.

From the department of the Seine cholera spread first to neighbouring departments, but later on extension took place somewhat generally in the north of France, the disease also appearing in departments situated as remote from the capital as the Bay of Biscay and the littoral of the Mediterranean. In all,

49 departments were invaded, 498 deaths occurring at Havre in the Seine Inférieure, 122 in the commune of Argenteuil in the Seine-et-Oise, 101 in the commune of Lorient, department of Morbihan, 89 at Marseilles in the Bouches-du-Rhône, 87 at Cherbourg in the Manche department, 61 at Nantes in the department of the Loire Inférieure, besides 59 and 33 at Le Portel and Boulogne-sur-Mer, as also 43 at Etaples and 25 at Calais, all in the department of the Pas-de-Calais. The total cholera deaths recorded in France during 1892 was 4,550, giving a rate of 1·75 per 10,000 of the population of the invaded departments.

(d.) *In Belgium.*—According to reports received from Belgium, the first occurrences of cholera in that country would appear to have been related to the cholera which had prevailed since mid-April in the departments of the Seine and Seine-et-Oise immediately outside Paris. Thus, isolated attacks of cholera which occurred in two provinces of Belgium during the month of July, followed on the return to their homes of men who had been at work in localities within the departments of France referred to. And the introduction of cholera into Antwerp is also stated to have followed on the occurrence of that disease on board ships immediately after their arrival from Havre, where the disease was then widely prevalent. From Antwerp cholera gradually spread, until by the middle of September nine provinces, and a considerable number of towns and villages, had become infected. By the end of the year 1,852 attacks and 961 deaths had been recorded, the rates per 10,000 of the population being 3·0 and 1·6 respectively, with a fatality rate reaching 51·8 per cent. of attacks.

(e.) *In Germany.*—In Germany both the Imperial and the Prussian Governments took precautions early in July for the prevention of cholera, these steps being especially directed to the control of the large emigrant traffic passing between infected Russian provinces and ports on the north-east of Germany, notably the port of Hamburg. The raft and river traffic also came under special regulations. Notwithstanding these and other measures, cholera broke out in Hamburg about August 16, and it soon became widely epidemic in the city and port, 16,956 attacks and 8,605 deaths occurring between

August 16 and the middle of November. This epidemic, which gave rise to an annual death-rate from cholera of 134 per 10,000 of the estimated population, was the most severe from which Hamburg has suffered on any of the sixteen occasions in which cholera has prevailed in that city. The circumstances under which cholera was introduced into Hamburg are discussed by Dr. Barry; but although they remain somewhat uncertain, no doubt can exist with regard to the fact that infection was widely distributed by means of the sewage-polluted water which was at that time delivered to the population from the River Elbe. Indeed, the experience afforded by Hamburg in respect of water serving as the medium for the diffusion of cholera in epidemic form has become historic by reason of the researches of Professor Koch and others, which went to show that whereas Hamburg, drinking unfiltered Elbe water drawn from a point above the sewer outfalls, but still liable to occasional sewage-pollution by reason of tidal action, suffered from epidemic cholera on a scale of exceptional magnitude, the town of Altona, which practically forms with Hamburg one continuous community, only suffered in a very minor degree, although supplied with water drawn from the same river, and at a point below that at which it is befouled by the sewage of well-nigh 800,000 people resident in Hamburg and Altona. According to Professor Koch, the remarkable immunity of Altona was due to the fact that the Altona water, which was filtered through sand and gravel, was so far free from the micro-organisms suspended in it by means of the slimy layer of mud, &c., which formed on the surface of the filtering area, as to reduce the risk of mischief to a minimum. But Professor Koch does not claim immunity from infection conveyed by water as the result of any known system of filtration in bulk; on the contrary, he shows that even by the aid of processes carried out with exceptional skill and precautions, every cubic centimetre of water must still be regarded as containing micro-organisms—pathogenic and other—in definite although largely diminished quantity.

Following on a flight from Hamburg, cholera spread to districts immediately around, to localities riparian to the Elbe, and to other portions of Germany. The incidence of the disease along the river water-ways was indeed remarkable; 111 places

were attacked along the Elbe, 27 along the Oder; cases followed the track of the Rhine boats, and much the same occurred along the banks of the Weser, the Spree, or the Vistula. Many of the manifestations of cholera in Germany were, however, small in amount. Including isolated attacks 14 counties (*Kreise*) in all were affected, the total cholera deaths for the period August 16 to November 19, 1892, reaching 9,563.

(f.) *In Great Britain.* 1. *Scotland.*—The first case of cholera in the *United Kingdom* was imported into Grangemouth on August 19. On the 25th two emigrants, who had landed at Leith, sickened in Glasgow; and on September 15, a fourth case was brought into Grangemouth. All these four cases reached Scotland from Hamburg. Only the first attack was fatal.

2. *England and Wales.*—Cholera reached England on August 25, and before the end of October 35 cases, of which 11 proved fatal, had been imported. Of the 35 patients 28 reached this country from Hamburg direct, 1 from Hamburg *via* Antwerp, 3 from Antwerp, 2 from Rotterdam, and 1 from Solombola near Archangel. I shall refer later on to the action taken with regard to these cases; and I would only here add that in no instance during 1892 did the disease extend to any person other than those arriving from abroad.

(g.) *In Holland.*—Holland received its first infection from Altona and Hamburg, and in its earlier distribution to the various provinces the disease not only occurred mainly amongst persons whose vocations brought them into relation with shipping, but the lines of diffusion were largely those of river and canal traffic. All the 11 provinces of Holland suffered more or less. Zuidholland, with its ports and river inlets, as also Utrecht in direct communication with these inlets, suffered heavily; whereas Drenthe in the north and Limburg in the south, both inland provinces, had each but a single fatal attack. In all, 293 cholera deaths took place in Holland between August 26 and December 31.

(h.) *In Austria-Hungary.*—The beginnings of cholera in Austria, which occurred during the early half of September, are involved in some obscurity. By the end of the month the disease had become established in Podgorze and Krakau, and it

spread rapidly into other neighbouring departments, and into towns on the Vistula below Krakau. During the months of November and December eastern Galicia was somewhat severely affected as the result of recurring importation from Russia; the places suffering most being mainly situated close to the frontier river Zbrucz, which was at the time frozen over. The disease, however, only acquired epidemic proportions in two Galician towns; whereas in other parts of Austria occurrences of cholera were both sparse and isolated. The total cholera deaths recorded reached 119 by the end of the year.

In Hungary the incidence of cholera along lines of river traffic was again exemplified by the prevalence of 1892. Buda-Pesth was attacked early in September, the disease appearing amongst workmen unloading hides which had reached the city from Hamburg. Its later diffusion involved no less than 25 counties and 10 municipal towns, a number of the invaded towns and villages being on or near to the banks of the Danube and its tributaries. The recorded attacks and deaths up to the close of December in Hungary were 2,231 and 1,281 respectively, the cholera death-rate of the invaded districts being 1·75 per 10,000 living. The records for Buda-Pesth, which extend from September 26, 1892, to February 8, 1893, include 525 fatal attacks.

(i.) *In the United States of America.*—The story of cholera in the United States during 1892 is remarkable in more senses than one. Between August 31 and September 16 seven vessels, of which six carried emigrants, arrived in New York, all of the seven coming within the definitions "infected" or "suspected to be infected." Six of the seven hailed from Hamburg, and one from Liverpool. Five of them, all from Hamburg, suffered from cholera during the voyage, 76 deaths, in all, resulting. The first vessel, the *Moravia*, arrived at New York having had 22 cholera deaths on board; and this circumstance led to the issue of a Presidential Circular, which, subject to certain limited provisos, inaugurated for vessels carrying emigrants a "quarantine detention of 20 days, and of such greater number of days as may be fixed in each special case by the State Authorities." The ultimate result of the Circular was, of course, a suspension of the emigrant traffic; but in the meantime the quarantine of many thousands of persons,

nearly all in health, was deemed necessary by the State Authorities; and, as has almost always been the case under such circumstances, the system needed only to be applied in order to break down. The arrangements with a view of carrying it out were of the most rudimentary character, they had to be largely improvised on the spot, and they led to much suffering. And furthermore, the adoption of such measures aroused a spirit of rioting, with resort to arms on the part of the neighbouring population, which had to be quelled by military measures.

But, in the meantime, cholera had succeeded in making its way into the city and State of New York; 16 attacks, including a few suspected cases, with 12 deaths, taking place.

(j.) *In other Countries.*—Minor outbreaks than those to which I have adverted occurred in other countries, including Servia. Isolated attacks of cholera also occurred in Italy, Denmark, Norway, and Morocco. As to these and to the details generally concerning the wide diffusion of cholera in various parts of the world during 1892, I would refer to Dr. Barry's report, which has been prepared at much pains and with great care.

(To be continued.)

PRELIMINARY NOTICE OF THE BACILLUS OF BUBONIC PLAGUE,

BY PROFESSOR S. KITASATO,

Tokio.

EARLY this year (1894) an epidemic of Bubonic Plague broke out in the South of China and Canton, from which city the disease was imported into the neighbouring island of Hongkong, where it has prevailed from the beginning of May until now.

The Imperial Japanese Government sent a Commission to Hongkong in order to study the Plague, especially as regards its bacteriological character and its pathological and clinical features. The pathology and medicine were the special study of Professor Aoyama, and the bacteriological part received the care of the author. Having left Japan on June 5, 1894, we arrived at

Hongkong on the 12th of the same month. Here Dr. Lowson, Acting Superintendent of the Government Civil Hospital, put everything needful at our disposal in the most friendly spirit. A room in the Kennedy Town Hospital (one of the Plague Establishments) was given to us, and there we began our work on the 14th of June last.

On that day, we were able to see a *post-mortem* examination, performed by Professor Aoyama. I found numerous bacilli in the bubo (in this case a swelling of the inguinal glands) in the blood of the heart, in the lungs, liver, spleen, &c. As the *post-mortem* examination was made eleven hours after death, I had still doubts about the true significance of what I found; I therefore made a cultivation and inoculated a mouse from a small piece of the spleen. On the same day I took, with all due precautions, some blood from the finger tips of a patient who had the disease in a very bad form, with a temperature of 40.5° C., swelling of the axillary glands, &c. Under the microscope I found bacilli with capsules, the poles of which were stained much deeper with aniline dyes than the middle part; this gives them a great likeness to the bacilli of chicken cholera (*Bacillus cholera gallinarum*). On the next day, all the serum cultivations which were prepared in the incubator from the different organs of the body, and of blood from the finger tips, showed a growth of micro-organisms, which, under the microscope, were not to be distinguished from those which we found in the blood and in the interior of the bubo at the first *post-mortem* examination. The bacilli differed only by being a little longer and staining easier in the middle than those taken from the blood. With these cultivations I inoculated subcutaneously mice, guinea-pigs, rabbits, and pigeons.

The mice, which were inoculated on the first day with a piece of spleen and some blood from the finger tips, died in two days' time, and at the *post-mortem* examination upon them, I found œdema round the place of inoculation, the same bacilli in the blood, in the internal organs, and in the œdematous part around the place of inoculation.

All animals which had been inoculated with the cultivations (pigeons excepted) died after periods extending from one to four days, according to the size of the animal. The same state

of the organs after death and the same bacteriological observations always obtained as in the case of the mice previously referred to. I propose to give further details about my experiments on animals at a later time.

Every day I took blood from many plague patients and examined it, and almost every time I found the bacilli as above described, sometimes in great numbers, sometimes only few in number, so that many glass slides had to be examined to find good specimens.

On the other hand these same bacilli were to be found at every *post-mortem* examination (of which we had upwards of fifteen), in great quantity, in the bubonic swellings, in the spleen, the lungs, the liver, in the blood contained in the heart, in the brain, intestines, in fact in all internal organs without exception—and every cultivation from any particle of these parts invariably produced the same bacilli.

Suppose the contents of a bubo or a small piece of the spleen to be rubbed on the cover-glass, and the latter, after having been stained, is examined under the microscope (one-twelfth inch oil-immersion Zeiss) bacilli will be discovered in the form found in pure cultivation (*Reinkultur*). In the spleen especially the bacilli are aggregated in heaps. Bacilli from bubonic swellings and from other internal organs are more easily stained with aniline dyes in their middle part than those taken from the blood, but any serum cultivation prepared from them produces the same form of bacillus.

In any case where cultivations are prepared from parts of any internal organs or from the blood taken from the finger tips, with careful observation of all due precautions, pure cultivations (*Reinkultur*) of one and the same bacillus are always obtained; therefore the most intimate connexion must exist between the bacillus and the disease.

Full particulars about the observations at the *post-mortem* examinations will be given later on by my colleague Professor Aoyama; generally it may be said that the parts in the neighbourhood of the bubo are cedematous, of a colour between black and red, infiltrated with gelatinous exudation, and that the spleen is enlarged. Both phenomena are to be found in inoculated animals in which the parts round the place of inocu-

lation present the same œdematous exudations as we find in human beings.

I shall now give a few short notes about the bacillus.

The bacilli are to be found in the blood, in the buboes, in the spleen and in all other internal organs of the victims of plague. The bacilli are rods with rounded ends which are readily stained by the ordinary aniline dyes; the poles being stained darker than the middle part, especially in blood preparations, and presenting a capsule, sometimes well marked, sometimes indistinct. The bacilli found in the spleen are best stained by a solution of methyl blue. I am at present unable to say whether or no "Gram's double-staining method" can be employed. I shall report upon this on a future occasion.

The bacilli show very little movement, and those grown in the incubator, in beef tea, make the medium somewhat cloudy. The growth of the bacilli is strongest on blood serum at the normal temperature of the human body (37° C.)—under these conditions they develop luxuriantly and are moist in consistence and of a yellowish gray colour; they do not liquefy the serum. On agar-agar jelly (the best is good glycerine agar) they also grow freely. The different colonies are of a whitish gray colour, and by a reflected light show a bluish glance; under the microscope they appear moist and in rounded patches with uneven edges—at first they appear everywhere as if piled up with "glass wool," later on as if having dense large centres. If a cover-glass preparation is made from a cultivation on agar-agar, and, after having been stained, is observed under the microscope, long threads of bacilli are seen, which might by careless inspection be mistaken for a coccus chain, but are recognised with certainty as "threads of bacilli" under closer observation.

The growth on agar-gelatine is similar to that on agar-agar; in a puncture cultivation, at the ordinary temperature after a few days, they are found growing as a fine dust, in little points alongside the puncture, but with very little growth on the surface. Whether these bacilli are able to liquefy ordinary gelatine or not, I am at present unable to decide, as the temperature of Hongkong ranges so high that the employment of simple nutritive gelatine is out of the question. I shall give further information on this question later.

On potatoes at a temperature of from 28° C. to 30° C. there was no growth after ten days' observation, but at a temperature of 37° C. the bacilli developed sparingly after a few days—they were whitish gray in colour and exsiccated.

As mentioned before, the bacilli grow best at a temperature of from 36° C. to 39° C.—at how low a temperature growth is possible, I am unable at present to state.

So far I have been unable to observe the formation of spores.

Experiments on Animals.—Mice, rats, guinea-pigs, and rabbits are susceptible to inoculation. If these animals are inoculated with pure cultivations, or with the blood of a plague patient in which the bacilli have been observed, or with the contents of a bubo, or with pieces of internal organs, or even with the contents of the intestine, they begin to become ill in from one to two days, according to the size of the animal. Their eyes become watery, they begin to show disinclination for any effort; later on they avoid their food and hide quietly in a corner of the cage. The temperature rises to 41·5° C., and with convulsive symptoms they die in from two to five days.

I must observe that in Hongkong I could only obtain small guinea-pigs (weight from 100 to 150 grammes) and small rabbits (from 200 to 250 grammes). If I could have experimented upon larger animals it is possible life would have been somewhat prolonged beyond the periods mentioned above.

The parts around the point of inoculation are infiltrated with a reddish gelatinous exudation, the spleen is enlarged, sometimes there is a swelling of the lymphatic glands, and in all the organs the bacilli are found. The results found after death in animals are very similar to those found in anthrax and in malignant œdema.

Pigeons do not appear to be susceptible to the influence of the bacilli.

I made experiments by feeding some mice and guinea-pigs with pure cultivations of the bacillus and with small pieces of the internal organs: the result was that such animals perished in a few days, under the same symptoms as those which had been inoculated. In all the internal organs of animals so destroyed I found the bacilli.

With the dust of dwelling houses from which the plague-stricken had been removed I made several experiments upon animals. Some of the animals died from tetanus. In one case only a guinea-pig died with plague symptoms, and in this animal the same bacilli were found in the internal organs as in those of plague patients who had succumbed.

These experiments with the dust from infected houses I shall certainly continue.

Many rats and mice, at present, die spontaneously in Hong-kong. I examined some of them. In the internal organs of a mouse I discovered the same bacilli.

Power of Resistance of the Bacilli to Physical and Chemical Agencies.

Experiments with Desiccation.—The contents of a bubo in which the bacilli were present in great numbers were wiped over cover-glasses (perfectly cleansed by heat and alcohol), and some of the cover-glasses were dried in the air of a room at a temperature ranging from 28° C. to 30° C. Others I exposed directly to the sun's rays, and from among them, after an exposure of from one, two, and three hours up to six days, I removed some parts, putting such portions in beef-tea and placing them in the incubator. Those which had been standing in the room from one to thirty-six hours, showed a pretty good growth in the incubator, but those which had been in the room for more than four days were unable to show any growth even after one week's incubation. Those exposed directly to the sun were all destroyed after from three to four hours.

Further cultivations on serum were treated exactly like the contents of the bubo with very similar results.

Experiments with Heat.—Beef-tea cultivations which had been heated for thirty minutes in a water bath up to 80° C. were destroyed—at 100° C. in the vapour apparatus they were destroyed in a few minutes.

Chemicals: Carbolic Acid.—To every ten cubic centimetres of beef-tea cultivations, which had been standing in the incubator from two to three days and had grown well, carbolic acid was added of a strength of one-half per cent. of the whole

—three-quarters per cent., and one per cent. They were afterwards well shaken and left at the ordinary temperature of the room. Of each of these cultivations a few drops were brought into sterilised beef-tea, after one, two, and three hours, and left in the incubator with the following results.

Those cultivations which contained one-half per cent. and three-quarters per cent. carbolic acid and had been left standing in the room for one hour, grew in the incubator after two days. A cultivation however of one per cent. which had been left standing for only one hour did not grow even after one whole week in the incubator.

Cultivations that had been mixed with only one-half per cent. of carbolic acid and had been left standing for more than two hours did not show growth after one week in the incubator neither did the other cultivations containing a greater percentage produce any growth.

Quicklime.—Experiments were made with quicklime in exactly the same way as with carbolic acid, with the following results.

Those beef-tea cultivations which contained one-half per cent. of quicklime grew sparingly, after two hours; those containing one per cent. of quicklime ceased to grow. Cultivations which had been mixed for more than three hours, even if containing only one-half per cent. quicklime, showed no growth.

Further experiments with chemicals should have been made, but as my time was extremely limited I had to leave them to a future time.

The following is a short review of "The Plague" generally.

History shows us that plague epidemics existed in the fourteenth century both in Asia and Europe and thousands of human beings perished. Since then from time to time, now here, now there, an epidemic has appeared, and until lately the disease almost seemed to have vanished from the face of the earth. This however was not so. In China it has existed to this day, especially in Yunnan, where it occurs every year in an endemic form. From the latter place it was imported to Canton, and from Canton for the first known time has reached Hongkong.

This recent outbreak has given us opportunity for studying this disease—a cause of mystery for centuries—with the means which modern science places in our hands.

The principal symptoms of the disease now ravaging Hong-kong are the following:—After the period of incubation, which lasts from three to five days (possibly a little longer and some doctors say as long as eight days), the patient complains of high fever and swelling of one or more of the lymphatic glands (buboes). These swellings may antedate, coincide with, or follow the rise in temperature, and are accompanied by severe pain. The most common gland affected is one of the femoral chain—next an inguinal, next axillary, and sometimes a cervical gland is affected. The tongue is coated with a grayish-white or dark brown heavy fur. There is commonly headache, also delirium, the heart is generally affected, occasionally vomiting and diarrhoea are present (not frequently the two last conditions, which are generally forerunners to a fatal issue).

In patients who survive the onset of the disease the temperature does not fall until a week has passed, and convalescence is a slow process.

Sex and age make no difference in the disease, men and women, infants and old people, are attacked equally.

If in such a case as described, the blood be examined, the before-described bacilli, in greater or lesser numbers, will be found present. (In thirty patients I obtained twenty-five positive results, and two of my subjects which were without bacilli were subsequently proved not to be suffering from the plague at all.)

As indicated before, it is not always an easy matter to demonstrate the presence of the bacilli directly in the blood of many patients—they are present sometimes in such small numerical strength that only after examining several slides can they be discovered. In order to be safe, not only must the blood of a suspected plague patient be examined, but a cultivation should also be made.

In the buboes the bacilli always occur in the form of pure cultivations, but it is obviously not always easy to procure a specimen of bubo-contents from the living subject.

The question arises,—“Is it possible to make a diagnosis of

bubonic plague from examination of the blood of the suspect?" In many cases, yes. But a good deal of bacteriological practice is required or such diagnosis is impossible.

It is a well-known fact that so far, amongst infectious diseases produced by bacilli, only two micro-organisms have hitherto been found in the human blood, viz. the bacillus of anthrax and the spirochætæ of relapsing fever (we do not include the plasmodia of malaria). Here in the blood of human beings suffering from bubonic plague we have a new bacillus possessing the following qualities:—

1st.—This bacillus occurs in the blood, in buboes, and in the internal organs of the plague-stricken *only*.

2nd.—This bacillus is not to be found in any other infectious disease.

3rd.—With this bacillus it is possible to produce in animals the identical symptoms which the disease presents in human beings.

From this evidence we must come to the conclusion that *This bacillus is the cause of the disease known as the bubonic plague, therefore the bubonic plague is an infectious disease produced by a specific bacillus.*

What are the channels by which these bacilli enter the human body? We may suppose that they have three principal channels of entrance: by respiration, through an external wound, and by the intestinal tract. Examples of the first two ways, of which I shall speak later on, are abundant. Examples of the last-mentioned way are not positive so far, but considering that we discovered the bacilli in the intestinal canal, and experiments on animals prove that feeding alone produces definite results, the assumption must be made that the third is a possible method of infection.

Most of the cases of bubonic plague occur amongst the Chinese, a few other nationalities excepted.

Whoever has looked into a Chinese dwelling in Taipingshan is at once persuaded that here is a suitable hunting-ground for the plague bacillus. The houses are so filthy that they are unfit for human habitation.

What means are to be employed against the plague? Preventive measures, general hygiene, good drainage, perfect water

supply, cleanliness in dwelling houses and cleanliness in the streets. As soon as an epidemic breaks out the sick must be perfectly isolated. The infected dwellings, before the household things are removed; have to be disinfected by 2 per cent. carbolic acid solution or by a solution of quicklime *in a correct way*. Afterwards, wearing apparel, linen, bedding, &c., should be specially disinfected by a steam disinfecter for one hour at a temperature of 100°C .; should a steam disinfecter not be available the things ought to be exposed directly to the sun's rays for several hours. Articles unfit for use ought to be burned. Dwelling houses thus emptied should be cleaned over again with quicklime or carbolic acid. The fæces should be disinfected carefully with quicklime. Dead bodies covered with quicklime are either to be burned or to be buried at least three metres from the surface. Mice and rats which have died spontaneously in dwelling houses should be carried away with proper precautions. After a patient has apparently recovered he must be kept apart from the healthy community for a period of a month, for during convalescence the bacilli may be discovered in the blood from three to four weeks after all symptoms have ceased.

Individuals ought to keep away from plague patients and infected houses and be careful about their solid and liquid nourishment.

These measures have been generally in force during the epidemic in Hongkong.

The question as to whether immunity against the bacillus of plague is possible on the lines practised against many other bacillary infectious diseases remains at present an open one. I shall study it thoroughly later on and in an exhaustive manner.

All that I have described above must be regarded only as a short preliminary notice. The results of extensive study on the subject of plague bacillus will be published by me at a later time.

Before I conclude this notice I beg to tender my heartiest thanks to the Colonial Government of Hongkong, to all the medical men here, and especially to Dr. Lowson for his kind assistance.

THE PRACTITIONER.

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Original Communications.

ON TROPICAL DYSENTERY.

BY SURGEON-GENERAL SIR JOSEPH FAYRER, K.C.S.I., LL.D.,
M.D., F.R.S.,

Consulting Physician to Charing Cross Hospital.

(Continued from p. 255.)

PATHOLOGY AND MORBID ANATOMY OF DYSENTERY.

I HAVE already anticipated in part the pathology of a simple case of dysentery.

In the acute attacks of vigorous persons, there is a slight rise of temperature, as there would be in an acute congestive or inflammatory attack of another kind. But, as it frequently happens (in India at all events) that the disease is accompanied by malarious fever, we may expect the thermometric variations that characterise that fever. The temperature, therefore, is not so much symptomatic of the dysentery as of the fever. In complications, where the liver, spleen, or other viscera are affected—and especially if suppuration occur—the phenomena of that process will be manifested by high temperature, and sweating after rigors or chills. The true pathological explanation of multiple abscess in the liver refers it to pyæmia, and it differs from that of the insidiously forming liver-abscess, when there may be very little alteration in the temperature, which may be only a degree or two above

normal, or from the acute when there is high temperature and sweating. In cases of sloughing, and in hæmorrhagic dysentery, when there has been much loss of blood, the temperature may fall below the normal standard.

In perforation, the temperature during the shock is at first sub-normal, but as peritonitis sets in it again rises.

The seat of localisation is chiefly in the large, but it may extend into the small intestine for several inches above the ileo-colic valve, and the whole intestine may be involved in the catarrhal condition. The liver is disposed to suffer in tropical climates, and either ordinary or septic abscess may occur. The spleen may be enlarged, and become the seat of abscess. When dysentery is associated with periodic fever, the spleen is frequently enlarged; and in such cases there is apt to be splenic cachexia, and the disease is of the asthenic type. The lungs are occasionally involved, and the remarks that I have made in regard to the nature of certain abscesses in the liver apply to them.

In the bronchial tubes, the mucous membrane becomes the seat of puriform exudation into the finer tubes, with patches of lobular pneumonia dispersed here and there throughout the lung.

There are other complications—erysipelatous, scorbutic, and typhoid—and one sees the analogy of the disease with typhoid and diphtheria, and that, as the seat of the localisation in typhoid is the ileum, in dysentery it is in the large intestine. May not the tendency of the disease to pass the ileo-colic valve perhaps throw light on the pathology of some of the so-called typhoid in India, which, by some, is referred to climatic causes rather than to a specific fæcal origin? If climatic conditions can cause disease in the large intestine, it needs no effort of imagination to suppose they can cause a similar process in the small intestine. It is not difficult to imagine that the stress of the morbid agency may fall primarily on the glands of the ileum, and so give rise to the enteric lesions which so closely resemble those of the enteric fever of our own latitudes. I do not assert that it is so, but I would suggest that those who regard the disease (in India) as always of fæcal origin should give the subject reconsideration.

The lesions in the large intestine are the result of inflammation and exudation affecting the mucous and sub-mucous tissue, the glandular structures of the gut, and subjacent areolar tissue, which is infiltrated and swollen by effusion of serous, sero-purulent, or fibrinous matter, causing softening, ulceration, sloughing, or gangrene of the mucous membrane, which may extend to the *whole* substance of the gut. Bleker dwells on the pathological importance of the exudation, which he says takes place for the most part *into* the tissues beneath the mucous membrane, though occasionally it is on the surface in a diphtheritic form, or as in croup. Virchow describes a catarrhal or sero-purulent and a fibrinous or diphtheritic form, at the same time admitting that in many cases they merge into each other.

Sporadic dysentery, he says, is chiefly catarrhal, whilst the true diphtheritic or fibrinous form occurs in epidemics and in the worst form of malignant and gangrenous dysentery.

In the catarrhal form, at the outset there is hyperæmia of the mucous and sub-mucous tissues. The surface is covered by transparent mucus tinged with blood. The membrane itself is red, with dark points and patches corresponding to folds in the mucous membrane, and, when it occurs in the small intestine, to the *valvulæ conniventes*. The sub-mucous tissue is swollen by the distended blood-vessels, but the rest of the intestinal coats are unaffected in the outset. The mucous membrane "is swollen and of a whitish-red colour, with red areolæ round the follicles, which appear like little white knots" (Heubner). Where the swelling is considerable there are small apertures in the mucous membrane over the follicles. These correspond to depressions in the mucous membrane, and become filled with mucus (Heubner).

The ulceration may be very extensive and fatal, but, when it is not so, cicatrisation and repair follow.

In Virchow's fibrinous or diphtheritic form, or in gangrenous dysentery, the intestine is intensely congested, the lumen diminished, and the whole tube thickened. The contents consist of a thin reddish fluid, with some fæcal matter. The mucous membrane is covered with discoloured patches, and the natural appearance of mucous membrane is lost. There is

infiltration of fibrous exudation, which may invade the whole gut, and then gangrene and death result. Most cases, however, are probably combinations of the catarrhal and fibrinous forms, causing thickening of the bowel. This explains the irregularly thickened state of the gut; and from such cases sloughs are thrown off and ulcers form. The site and extent of these vary. The sigmoid flexure is a common site; the cæcum in certain cases, and the rectum in others, are the principal seats of it. In some severe instances the whole gut is involved; but it may occur at different periods in different parts of the bowel. The condition of chronic dysentery into which these cases often pass is due to these structural changes in the bowel—*i.e.*, to thickening, contraction, and imperfect cicatrisation of the ulcers, and to the permanently injured state of the glandular structures.

The abdominal and mesenteric glands are sometimes found to be enlarged. In cases of tuberculous diathesis—a condition in which dysentery (it is said) is prone to occur—the glands, and indeed the sub-mucous coat of the bowel, may be the seat of such a deposit.

Dysentery is always a subject of anxiety when it occurs during pregnancy. It is very prone to cause miscarriage or abortion, and the progress towards recovery is generally more rapid after the ovum is extruded. It is less amenable to treatment in the early stages in this state, and in either chronic dysentery or ordinary dysentery serious symptoms are more likely to supervene in the pregnant woman than in others.

It also frequently complicates recovery after delivery, and assumes a dangerous condition, though happily, even in this form, it is under the control of appropriate treatment.

Intestinal worms—*e.g.* lumbrici—are a frequent accompaniment of dysentery in Bengal, and their presence must tend to intensify the local irritation and to aggravate the disease.

We are indebted to the late Dr. Parkes for a description of the morbid anatomy and intimate nature of the changes that take place in the glands. He thought that these structures are very early implicated, and that true dysentery never occurs without ulceration being present. From investigations made in Moulmein (Burmah), he concluded that—first, certain alterations in the

glands of the mucous membrane of the large intestine, and sometimes of the ileum, constitute the earliest symptoms of dysentery. Secondly, that in all cases not too far advanced the mucous membrane presented the appearance of numerous whitish round elevations of a size varying from that of a millet-seed to one so minute that only a lens can show the lesion. These elevations were hard, and being pierced, gave forth a white excretion. Many of these had a hard black speck in the centre and were surrounded by a vascular circle. Thirdly, that exudation sometimes occurred in points beneath the mucous surface; and that such points of exudation had a white appearance, with contents similar to those of the solitary glands.

The tubercles, pustules, and ulcers described by Pringle, Broussais, Hewson, Davies, and others, as occurring in the camp epidemics of the Continent, have their origin in the solitary glands.

Dr. McConnell, of the Medical College Hospital, Calcutta, says:—"The disease commences essentially and primarily in the gland-structures. I have had opportunities of seeing several *post-mortems* at a very early period; and then the only visible alteration is in the solitary glands and follicles of Lieberkühn: the former especially, which I have found enlarged to the size of small hazel-nuts, and filled with that glazy, semi-transparent, glue-like mucus which we almost always find voided with the earliest evacuations during life in this disease."

The more severe forms, in which the mischief extends into the small intestine, are most generally seen in tropical countries, so are the inflammation, pulpy softening, changes in the mucous membrane, ulceration, sloughing, and exudation of tubular casts of a diphtheritic character. It is in such cases, too, that fibrinous exudations are apt to result in thickening and chronic ulceration, and in the train of wretched symptoms that result from the contracted, strictured, and indurated gut found in some of the worst cases of chronic dysentery.

The late Sir W. Aitken says:—"There can be no doubt that the anatomical signs of true dysentery are inflammation of the solitary lenticular follicles of the large intestine, tending, in the first instance, to intumescence and congestion, and subse-

quently to ulceration and destruction of the gland-tissue. The disease, extending by a similar process, ultimately involves the tubular glands of the general mucous membrane, which tend to soften and to be cast off as a slough, exposing the sub-mucous connective tissue, or even the muscular coat of the gut. It is the mucous membrane of the great intestine, and especially that of the rectum and lower portion of the colon, which is the seat of these characteristic lesions. The exudative process is generally diffuse, involving the whole of the tissues of the mucous membrane in a diphtheritic process of infiltration. The diseased part looks as if it were covered with a bran-like coating, especially over the summits of the folds of the mucous membrane, which are deeply reddened by ecchymosis and injection, and infiltrated by the exudation. This bran-like coating cannot be scraped off without loss of substance, and the sub-mucous connective tissue below is œdematous and swollen."

In scorbutic or other low forms of dysentery, "a diphtheritic exudation covers not only the mucous surface of the colon, but the surface of the ileum above the ileo-colic valve. This exudation corresponds with the course of the bloodvessels ramifying from the mesenteric attachment transversely across the surface of the gut, and especially over the prominences of transverse rugæ" (Aitken). As regards the ulcers and exudations of the bowel, the former are various in form and extent, from small circular patches to extensive ragged surfaces corresponding to the amount of mucous membrane and sub-mucous tissue destroyed. They present different appearances and combinations according to the extent of tissue disintegrated. The contractions of the gut that follow, where life has been saved, are sometimes exceedingly distressing, and it is to these chronic ulcerations and thickening from infiltration of the tissues of the gut that the distressing conditions of chronic dysentery are mainly due. With these changes the abdominal and mesenteric glands are often enlarged. The ulcers are described by Sir W. Aitken as follows :

"The summary of the processes from which ulceration may proceed is as follows:—

"1. After intumescence, softening, and simple ulceration of one or several lenticular solitary glands.

"2. After intumescence, softening, and sphacelus of many solitary lenticular glands and the intervening tissue in one mass.

"3. After softening of the tubular structure and the detachment of sloughs, ulceration follows the intumescence and germination of growths from the tubes which cover the surface, as croupous, catarrhal, or diphtheritic exudation, to which the name of aphthous erosion has been applied.

"4. After sub-mucous inflammation and new growth, with fibrinous and mucinous effusion.

"5. After intertubular inflammation and inflammation surrounding the base of inflamed glands.

"6. After the formation of sub-mucous abscess.

"7. By changes of an ulcerative nature commencing in the vascular exudation itself, as in scorbutic cases."

The rectum is the part most affected, next the sigmoid flexure, then the cæcum; but in bad cases the whole gut is involved, and the appearance, when examined after death, is that of irregular ulceration, blackened or otherwise thickened.

It is very necessary to watch the characters of the slough thrown off during the disease. When the dejecta are washed, and the fæcal portions separated, the residue consists of ropy gelatinous mucus, branny shreddy deposits, sloughs of various sizes; and from their condition and appearance the progress and variety of the disease may be ascertained. The late Dr. E. Goodeve, Professor of Medicine in Calcutta, made important observations on this subject. I asked the late Dr. N. Chevers, formerly Professor of Medicine in Calcutta, for any information he could give me as to Dr. Goodeve's views, and also for his own, as derived from his great experience, and the following is his reply.

DR. CHEVERS' OBSERVATIONS.

"By washing the stools throughout an attack of dysentery the following appearances may be observed:—At the onset the first or second dejection completely, or nearly so, evacuates all fæculent matter.

"The stools then consist entirely, or with but slight traces of fæculent matter, of 'rose mucus,' of gelatinous consistence. At

this stage, in most cases, the disease is readily amenable to treatment, as by ipecacuanha. This is generally the case with patients, who, having been attacked at night, seek aid in the morning. In hospital cases the disease has almost invariably been neglected for some days previous to admission.

"In a neglected case sloughs are generally passed on the sixth or seventh day. These vary in size. In fair constitutions, these sloughs often have much the appearance and consistence of a preserved oyster. They are oval, and nearly a sixth of an inch in thickness. They are made up of the whole depth of the mucous membrane, frequently backed with some of the muscular coat, the sub-mucous tissue being largely infiltrated with the products of inflammation. We know these as the 'pus-infiltrated sloughs.' When this kind of sloughing occurs extensively, nearly the entire mucous lining of the large intestine may come away in the form of 'tubular sloughs.'

"In this form of sloughing, it is very remarkable that, formidable as the symptoms are, the patient's condition often appears to improve, as if in proportion to the quantity of slough got rid of; but, in the end, there may be frightful puckering of the colon, and rectal stricture.

"In this form of the disease, all the sloughs having separated, we find, on washing, more or less of 'branny mucus'—which is clear evidence that the case is rather far advanced, and that it promises recovery. In a few cases we find a large quantity of mucus, which is quite transparent and tenacious. The presence of this ropy mucus is often a sign that recovery is almost completed.

"The *gangrenous colitis* or Bengal—a disease which is usually mortal in from eight to twelve days—commences, as dysentery, with 'rose mucus,' but I have not seen either the 'branny mucus' or the sloughs described above. A few days before death we can usually discover a black or coffee-coloured sphaelated object, which almost precisely resembles an old sooty cobweb rolled together and floating in the fluid. I often sent for such a cobweb and placed it beside the slough in the plate; one could hardly be distinguished from the other. I believe that Goodeve regarded this as sub-mucous areolar tissue, separated after gangrene. When these sloughs appear, death

is inevitable. I never knew an unfavourable prognosis fail. With these sloughs there is more or less hæmorrhage. The stools now frequently resemble, in colour and consistence, cream mixed with blood. Once recognised, the penetrating fœtor can never be forgotten. After death, the large intestine is found lying like a dead snake; there is almost universal sphacelus of the mucous and muscular coats, and this not unfrequently extends to the peritoneal coating of the bowel."

I now give Dr. Chuckerbutty's own words. He says :

"Molecular sloughs or putrilage show disintegration of tissue.

"Flaky epithelial sloughs indicate commencing of gangrene of mucous membrane.

"Thin black sloughs, plain or tubular, show the primary gangrene of the mucous coat.

"Shreddy, ragged, and dark olive sloughs show gangrene in either mucous or cellular coat.

"Thick pus-infiltrated sloughs show erysipelatous dysentery—very dangerous.

"Gray or light yellow sloughs, plain or tubular, show phlegmonous dysentery.

"Gray shaggy thick sloughs show violent inflammatory action.

"Free gelatinous or cellular sloughs, when simple, show the presence of primary gangrene in the sub-mucous connective tissue; when pus-infiltrated, that of sub-mucous cellulitis.

"Ring-shaped sloughs show ring-shaped ulceration in the mucous folds.

"Discoid sloughs show circular ulcers in ecchymosed patches.

"Ecchymosed sloughs show the presence of abraded minute ulcers and intestinal apoplexy.

"Nodular sloughs would show the presence of nodular follicular disease; but these sloughs are very apt to be confounded with pieces of pus-infiltrated mucous sloughs of erysipelatous dysentery."

This seems rather an over-refinement of classification, but it shows how much importance was attached to the study of the sloughs by a physician of great experience, whose opportunities of studying were unusually extensive.

Considerable attention has of late been devoted to the

subject of amœbic dysentery. Drs. Councilman and Lafleur¹ have especially studied the relation the *amœba coli* bears to tropical dysentery, and have published a highly instructive monograph thereon. Recently² Dr. Patrick Manson and Dr. Galloway recorded a case of liver abscess in which the *amœba* were detected; and Mr. J. Harold found the *amœba coli* in the stools of an ex-soldier invalided home from India for chronic dysentery, this being the first case recorded in England.³

TREATMENT OF ACUTE DYSENTERY.

It is hardly necessary to say, that spoliative or depletive measures are not to be thought of in the treatment of dysentery. Whatever may have been the practice in past times as regards the use of mercury or venesection, it is no longer deemed expedient to resort to them. Even in the sthenic forms of the disease it is, as a general rule, undesirable to abstract blood, unless such as may be taken by a few leeches applied over the course of the large intestine, and even then but very seldom; whilst the exhibition of mercury, with the object of inducing its physiological action, is altogether to be deprecated.

The various methods of treating dysentery have been as varied as the theories of the disease itself, and the results have always been unsatisfactory. But the last thirty years have witnessed considerable progress in the therapeutics of dysentery, and we now know that if it be dealt with in the very outset there is probably no disease more amenable to treatment.

It is needless to recapitulate the teaching or practice of the advocates of bleeding, mercurialism, astringents, and a farrago of drugs and nostrums that proved alike futile and unsatisfactory. I might perhaps, with more advantage, advert to the recognition of the malarial origin of dysentery, as proof that this had suggested a rational treatment to Morton, when, in the seventeenth century, he availed himself of the antiperiodic virtues of Peruvian bark, in which he was followed by many other physicians.

Suffice it to say that each new plan, having failed, gave place to another, and that dysentery continued to be intractable,

¹ Johns Hopkins Hospital Reports, vol. ii., Nos. 7, 8, 9, 1891.

² *The Lancet*, p. 676, March 31, 1894.

³ *Brit. Med. Journ.*, p. 1429, December 31, 1892.

until a medical officer, of the British Army, Mr. Docker in 1858, recalled attention to a drug that had long been known as a remedy for dysentery. Disappointed with the results of bleeding, purgation, mercury, opium, astringents, and the like, as all failed to give satisfactory results, he determined to try the effect of repeated large doses of ipecacuanha, and being at the time in charge of his regiment in the Mauritius, where dysentery prevailed, he passed from reflexion to experiment, and found the remedy so successful, that an important revolution in the treatment of this dangerous disease followed.

His method, which consisted in administering large doses of ipecacuanha, was at once taken up by medical officers in India. For the ten years previous to the use of this remedy, the death-rate for dysentery among British soldiers was 107 per 1,000 cases—that is, nearly 11 per cent. of the cases were fatal. The mortality, on its adoption, fell to 81 per 1,000 in 1859 to 54 in 1860; and during the ten years subsequent to its introduction the mortality averaged 47 per 1,000, *i.e.* less than 5 per cent. of cases proved fatal, whilst at the present time the death-rate is even lower.

The cure, moreover, is not only much more rapid than under the methods previously used, but is more complete, and relapse may be considered rare. The remedy is equally effective with the natives, and the saving not only of life, but also of money to the State, has been immense; and it is well known to medical officers who have served in countries where dysentery prevails, that if the disease be treated early with full doses of ipecacuanha, acute dysentery is as tractable as ordinary diarrhœa. Dr. K. McLeod, of Calcutta, writes, and I can confirm what he says:—"I have had a number of cases of acute dysentery, in which large doses of ipecacuanha were followed by *immediate or speedy recovery*. In one case a man was taken ill on Saturday, had his ipecacuanha on Saturday night, and was able to attend office on Monday." "These," says Dr. McLeod, "are cases of catarrhal dysentery, I suspect. An acute case of dysentery, however severe, ought to get well under proper (*i.e.* ipecacuanha) treatment in a week. The most troublesome and obstinate are cases of rectal dysentery with hæmorrhoids, and perhaps rectal ulcers. I have tried ergot in

these cases, and found it answer better than ipecacuanha; but rectal medication is the most successful." In the former part of Dr. McLeod's remarks I quite concur, for it accords with my own experience. About the ergot I am not so sure. The ulceration and other structural changes, which are the *results*, are less easily dealt with; but even when they are established, if there be a recurrence of the acute symptoms, ipecacuanha is again needed. I feel sure all will agree with me that we owe a debt of gratitude to Mr. Docker for his important contribution to the therapeutics of dysentery.

The *rationale* of its action is explained by Dr. Ewart in nearly the following terms:—"In large doses it stops inflammatory action, augments the alvine secretions from œsophagus to rectum, increases the flow of bile and pancreatic juice, purges without irritating, lessens peristaltic action, produces rest, restrains tormina and tenesmus, promotes diaphoresis, restores the balance of the portal circulation, is a direct sedative of cardiac action; acts on the glands of the stomach, duodenum, small, and large intestine."

It is doubtful whether the nausea and emesis are beneficial (I have always felt disposed to think that they are so): at any rate, they do not interfere with the action of the ipecacuanha.

"It produces all the benefits that have been ascribed to blood-letting, without robbing the system of blood; all the advantages of mercurial and other purgatives, without their irritating action; all the good results of antimony and other sudorifics, without their uncertainty; those ascribed to opium, without aggravating or masking the disease."

But "much remains to be elucidated before the true physiological action of the remedy can be fully understood."

For my part, I am disposed to believe that it is by its general effects rather than by any direct specific action that it proves useful.

The treatment of an attack of ordinary acute dysentery is to be conducted on the following plan. The patient should remain in bed or in the recumbent posture; if there be abdominal pain or tenderness on pressure, hot fomentations or turpentine stupes should be sedulously applied. A dose of twenty or thirty grains of ipecacuanha powder, according to

age, strength, &c., should be given to an adult at once in water, and the patient should endeavour to resist vomiting as long as possible—though for my part I am inclined to think the emesis does rather good than harm. It may be well to combine ten grains of carbonate of sodium with the ipecacuanha. It is recommended by some to give a dose of fifteen or twenty drops of laudanum before the ipecacuanha, and to apply a sinapism to the epigastrium, with the view of diminishing irritability of the stomach and of preventing sickness. The patient must abstain from all fluids except occasional mouthfuls of iced water or bits of ice to allay thirst, which is often intense. My own plan has generally been to repeat the dose of ipecacuanha in four or six hours—a second or third time, according to the effects. I have generally found that if this treatment be resorted to early in acute dysentery, it is most effective. The pain diminishes, the tormina and tenesmus are alleviated, the restlessness is abated, the sense of fulness and desire to go to stool passes away, the skin becomes moist, and in all respects a general sense of relief is experienced. The motions become fæculent, and assume a peculiarly yellow appearance. If any irritability should remain, a dose of ten or fifteen grains of Dover's powder is beneficial; it gives ease, sleep, and aids in the restoration of the natural action of the bowels. Small doses of castor oil—half an ounce or less—are given occasionally, and by some are considered of importance. No doubt if there be inaction of the bowels after ipecacuanha, or if it be necessary to aid in expelling mucus—for the irregular contraction of tenesmus is not always efficient in this respect—the castor oil is most desirable; or if there be indications of hepatic or portal congestion, sulphate of sodium or magnesium would be better.

A certain amount of nourishment should be given, but it must be fluid, and of the most bland and unirritating character—animal broths, milk and soda-water or lime-water (for milk alone is not always tolerated), and arrowroot. Farinaceous food, as a general rule, does not agree, and it is better to adhere as nearly as possible to broth and milk. In the acute stage, at the outset this alone is necessary, and all remedies of an astringent or sedative nature are unnecessary.

It is quite possible that there may be a recurrence of the acute symptoms; in which case the ipecacuanha must again be given, though it may now be in smaller doses of ten or fifteen grains—the recumbent posture and the carefully regulated diet being rigidly observed, with fomentations, turpentine stupes, and ten grains of Dover's powder at night; or an injection of starch and thirty or forty drops of laudanum.

When the disease has advanced to ulceration, and when the chronic stage has been fully established, the ipecacuanha is no longer useful.

In the case of the intelligent classes, and soldiers or others under control, we are generally in a position to deal with the disease in the catarrhal stage. Many cases do not appear until the catarrhal stage has been overpassed, and a condition more difficult to deal with has been established. In such cases, where from delay in treatment, or when the disease has been neglected, either the congested exudative stage continues, or ulceration has begun, it may be necessary to continue the use of ipecacuanha, though in smaller doses of four or five grains, and it may be expedient to combine it with other drugs. Dover's powder, alone or combined with quinine, and, it may be, ten or fifteen grains of sodium bicarbonate or bismuth two or three times a day substituted, especially at night. The powder of *Calotropis gigantea* has long been one of the Indian remedies, but I cannot say that I know much of its value in the treatment of the disease.

Complete rest of the body and intestines is necessary, and for this the recumbent posture, and remedies that allay muscular spasm, are necessary.

Judiciously used, opium may be of great benefit, but, as a general rule, it is better to avoid the use of it as much as possible.

(To be continued.)

TWO CASES OF FRIEDREICH'S ATAXY.

BY JAMES TAYLOR, M.A., M.D., M.R.C.P.

Senior Assistant Physician to the National Hospital for the Paralysed and Epileptic, Queen Square.

THE two following cases of Friedreich's ataxy have seemed to me to be worthy of being recorded, because while both are fairly typical cases of this condition, they differ in some points from the usual type, and in several points from each other. I am indebted to Dr. Hughlings Jackson for the opportunity of studying them in hospital, and for permission to use the records which were made by his house physician, Dr. Guy Wood.

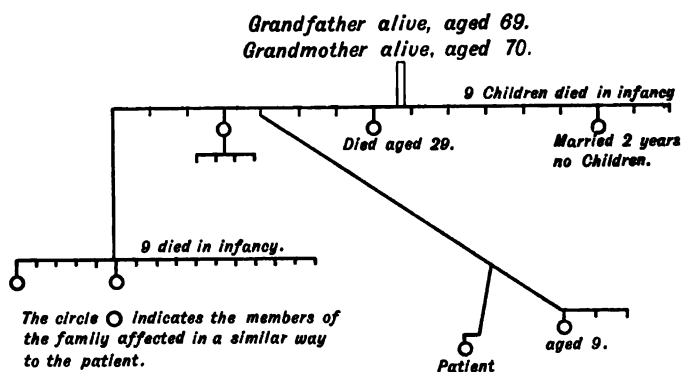
Case I.—A. aged 16, was admitted under the care of Dr. Hughlings Jackson on *February 5, 1894.*

Nothing unusual was observed in his appearance until three years before admission, when his mother observed that he had a tendency to run instead of walk, and a clumsy way of doing anything. This awkwardness increased so that he knocked things over at table, and unsteadiness of the head was also noticed. The symptoms gradually increased, and about a year ago it was observed that one of his shoulder-blades was sticking out. There has been no psychical change, except perhaps a certain amount of increased irritability lately.

His previous history is without significance, except that he had small-pox at three, and scarlet fever at three and a half. The latter illness according to his mother "left him with a weak heart." His family history is peculiarly interesting. His maternal grandfather and grandmother are alive and healthy, at the respective ages of sixty-nine and seventy. There is no

blood relationship between them, and no history indicating disease similar to that from which the patient suffers can be found in them or their contemporaries. They had in all sixteen children, of whom nine died in infancy. Of the others three were affected with a paralytic disease, closely resembling in its features, and probably identical with, Friedreich's ataxy. Of these three, one was a female, who died unmarried at the age of twenty-nine; another was a male who was married two years but had no children; the third was a male who had four healthy children. Of the remaining apparently healthy four children of the grandfather, one was a male who had sixteen children, two of whom suffer from a disease, which, so far as can be judged from the account given of it, is Friedreich's ataxy. Another is the mother of the patient whose case is here described. She herself is the fifth in order in the family, and has been married twice. A posthumous child by her first husband is the present patient. Of three by the second marriage the eldest suffers from extremely well marked nystagmus, but appears to be otherwise healthy.

The accompanying chart, devised by Dr. Colman, will show at a glance the state of the family.



The condition of the patient when he came under observation was as follows: He is well nourished, and looks healthy. No œdema or scars are to be observed except some pitting from small-pox. Whenever he is in any other position than the recumbent, there is well marked tremor of the head and neck,

and of the whole trunk. There is a very marked lateral curvature of the spine, with the convexity to the right, causing a prominence of the right scapula, and a certain amount of deformity of the chest. (Fig. 1.)

He walks with a curious shambling gait, rolling or lurching from side to side, and he cannot walk along a straight line, or "toe" a line. In standing with his feet close together and his



FIG. 1.

eyes open there is some unsteadiness ; when the eyes are closed this is markedly increased.

With the hands all movements are carried out fairly well and strongly, only they are accompanied by coarse tremor. He is fairly accurate in carrying them out. There seems to be a little difficulty in extending the fingers, but there is no deformity of the foot. The knee-jerks cannot be obtained.

With the exception of a murmur indicating some degree of mitral regurgitation there is no sign of visceral disease. There is no sensory impairment or pain; vision is good, the pupils are equal and react to light and during accommodation; there is slight nystagmoid jerking on deviation. There is no sign of psychical abnormality. There is perhaps a slight blurring of articulation and occasional difficulty in getting out the words.

Case II.—B. æt. 16, was admitted *February 5, 1894*, also under the care of Dr. Hughlings Jackson.

About three years ago the patient was noticed to have some deformity of the right foot, and a little later of the left. He experienced some difficulty in getting about, and his gait became shuffling and awkward. About a year after his feet began to trouble him, he experienced some difficulty in handling and holding things on account of unsteadiness of his hands. His head also began to shake. His symptoms have gradually increased in intensity.

About two years ago he was brought home unconscious after what was said to be a fall. Since then he has had several similar falls, three or four in all, each succeeded by a period of unconsciousness lasting usually about fifteen minutes. No history can be obtained to elucidate further the nature of these attacks. It is stated that there has been slight but gradual deterioration in his mental condition.

In his previous history there is nothing significant. He suffered from measles and whooping cough in childhood, and is subject to attacks of bronchitis in the cold weather.

In his family history there are one or two points of interest. His father had a chancre twenty-seven years ago, but has had no further manifestations of syphilis. He has been a fairly temperate man, but has given way to occasional over-indulgence in alcohol. His mother is an epileptic, and is under treatment as an out-patient at the hospital. She has an uncle in an asylum. He has one brother who is healthy. His mother has had one miscarriage.

The patient is a somewhat delicate-looking lad, with a dull heavy expression, but he seems to have fair intelligence. He has some difficulty in standing upright on account of the marked deformity of his feet, to be referred to presently. As

he sits there is evident tremor of the head, somewhat choreiform in character, and the trunk is also unsteady. Similar tremor is visible in his hands when he holds them in front of him, or when he tries to do anything with them. So long as they are at rest on his knees they seem to be fairly steady. With the exception of this unsteadiness, movements of the arms are carried out with a fair amount of power. There is no deformity of the hands.

His gait is of a shuffling and rolling character, and in walking he deviates considerably, first to one side and then to the other. There is evidently difficulty in maintaining the balance, especially when he turns round. This difficulty is also present in slighter degree when he stands, and is distinctly increased when the eyes are closed.

All the movements of the legs are carried out strongly, except those of the toes and feet, which are interfered with by the deformity that is present. The toes are over extended at the metatarso-phalangeal joints and flexed at the interphalangeal joints. There seems to be a swelling over the dorsum of the foot, while a marked hollow exists on the inner side. The condition, as will be seen in the figure (Fig. 2), is an extremely marked one of *pes cavus*, and is similar in the two feet, although more marked in the right. The plantar reflexes are present, and so are the knee-jerks, although the latter are not so well marked as in the normal individual. No elbow or wrist jerk can be elicited. The organic reflexes are unaffected. There are no symptoms of sensory disturbance.

There is a slight lateral curvature, with the convexity to the left, and a consequent prominence of the left scapula.

The sight is good, and the optic discs unaltered. The ocular movements are good and the pupil reactions normal, but there is distinct nystagmoid jerking on lateral deviation. The articulation is peculiar. It seems to lack crispness and definition, and the words sound as if pronounced in a very slovenly fashion, although there is evident effort in speaking them, and they tend to run one into the other.

These two cases then are examples of the disease known as Friedreich's ataxy, and they are interesting in regard to

the points in which they resemble each other, but more interesting perhaps because of their differences. Each case by itself illustrates some of the signs and symptoms by which this condition is recognised; both together they furnish practically all the points which are pathognomonic of the disease.

As regards the resemblances between the two cases, both are of the same age—early adolescence, and in both the first symptoms were observed about the time at which the changes accompanying puberty commence. In their mode of progression the patients are closely alike, and the expression of their faces is similar, that in A., however, being less dull than



FIG. 2.

that in B. In both also there is a lateral curvature, although it is slight in one and extremely marked in the other, as the accompanying illustration (Fig. 1) will render evident; and both have slight nystagmus. But the chief interest of the cases

lies in the differences which exist between them. Probably the most striking difference is in the matter of family history. In the family of the patient A. the tendency to this, or at least a similar form of disease, is very marked, no fewer than six near relations being affected. No account of a similar affection in any relative of B.'s can be discovered, the only significant point in his history being the fact that his father suffered from a chancre and confesses to alcoholic excess. One point perhaps to be noted in regard to A.'s family is that the stock seemed to be a peculiarly prolific one, for the grandfather had sixteen children and one of his sons had the same number.

But there are differences also in the actual condition of the patients themselves. Thus in B. the characteristic deformity of the feet—the so-called “humped foot,” or *pes cavus*—exists in an extreme degree, as the illustration (Fig. 2) shows; while in A.'s feet nothing unusual is to be observed. Then too in B. the articulation is of the blurred character almost invariable in this disease, while in A. it is comparatively clear and unaltered.

In many cases of Friedreich's ataxy a basic systolic murmur is audible on the left side. It is not present in either of those patients, but in A. there is evidence of actual organic mitral disease. And as regards the psychical condition there is some difference, the one patient being bright and intelligent, the other somewhat dull and stupid. The presence of attacks of loss of consciousness in the latter may have some significance in regard to this. What the nature of those attacks is it is not easy to determine from the account furnished, and there was no opportunity of observing one while the patient was in hospital. But the fact that the lad's mother is an epileptic must not be lost sight of, and it makes it at least not improbable that the so-called falls, which are accompanied with loss of consciousness, are epileptic in character.

One other point remains for consideration—namely the difference in the condition of the knee-jerks—their presence with perhaps diminished activity in B., and their absence in A.

In the great majority of cases of Friedreich's ataxy the knee-jerk is absent. But a variety of hereditary spinal disease has been described by Dr. Tooth¹ in which the reflexes are

¹ *St. Bartholomew's Hospital Reports*, vol. xxvii.

exaggerated, and the signs are those which are met with in cases of spastic paraplegia, or, speaking anatomically, lateral sclerosis. Further, a series of cases has been described in considerable detail by Dr. Sanger Brown of Chicago,¹ in which with exaggeration of the reflexes there were also present many of the symptoms of Friedreich's ataxy. There was a very distinct family tendency evident in these cases. So that it appears that we may have instances of disease, similar in other respects, in which the knee-jerk may be absent, may be present, or may be exaggerated. When regard is had to the anatomical changes which have been found to underlie Friedreich's ataxy such variations in this clinical feature will not seem surprising or anomalous. In the cases hitherto examined the condition found in the cord has been one of widespread sclerosis affecting all tracts, but in greatest degree the posterior columns. It is easy to imagine that in certain cases the chief affection may be of the lateral columns, and then we have the condition of things found clinically in Dr. Tooth's and Dr. Sanger Brown's cases; or in another class of cases the sclerosis in both lateral and posterior columns may be nearly equal, so that the exaggeration of knee-jerks which the lateral sclerosis alone or in excess would allow is checked by the sclerosis of the posterior columns, and so the condition of things is produced which is found in case B.—namely some diminution in the activity of the jerks. It is quite possible that as the disease advances the sclerosis may encroach more and more on the posterior columns. If it does so then it is probable that the knee-jerks which are now present will entirely disappear.

¹ *Brain*, 1892.

CHLORIDE OF CALCIUM IN PNEUMONIA.

BY D. M. MOIR, M.A., M.B.

Indian Medical Service.

OF a truth the anxious mother and the youthful practitioner have given sad cause for Mr. Raven's vigorous protest¹ against the indiscriminate use of antipyretics. Yet I fear I may myself incur the penalty of being pilloried as an "antipyretist," the term used by Mr. Raven, if I venture to dissent from his policy of *laissez faire* in the treatment of any well-recognised febrile process. The very confidence he displays in asserting that "no case has been made out for the use of antipyretic measures in ordinary cases of acute pneumonia" is not calculated to secure that of his readers. I doubt whether his statement would have been quite so sweeping had he been aware of the treatment of acute sthenic lobar pneumonia by full and frequent doses of chloride of calcium. Surgeon-Lieut.-Col. A. Crombie, M.D., the Surgeon Superintendent of the European General Hospital, Calcutta, was the first to attract attention to the utility of this drug in acute pneumonia.²

The objection will probably be made that chloride of calcium is not an antipyretic, and that I have no right to class it as such. To what extent this medicine is, or is not, an antipyretic I am not prepared to state positively at the present time. I am convinced, however, that chloride of calcium, when given in full doses, has the effect of reducing temperature, and of

¹ "The Antipyretic Treatment of Acute Disease," *Practitioner*, July 1894.

² "On the Use of Chloride of Calcium in the Treatment of Pneumonia," read before the Calcutta Medical Society on January 18, 1893, and published in the *Indian Medical Gazette* for February 1893, and the *Practitioner* for April 1893.

keeping it reduced, in certain acute inflammatory diseases of the lungs.

Dr. Crombie has shown that, in lobar pneumonia, (1) chloride of calcium reduces the temperature and keeps it within safe or normal limits, in spite of the continuance of the physical signs; (2) that there is a tendency for the morbid process to be arrested at whatever stage the drug is given in efficient doses, and that the course of the disease is thus shortened or rendered milder; (3) that there is a singular freedom from all anxiety, distress, and

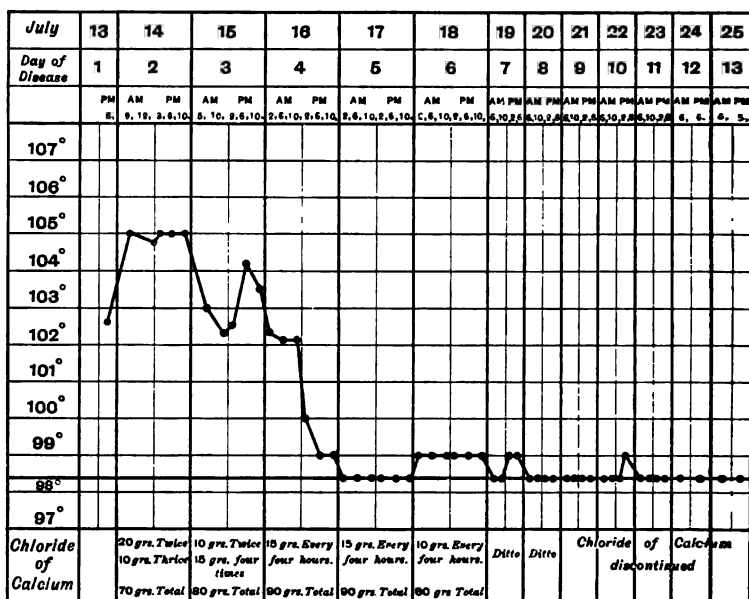


CHART 1.

danger, a freedom not usually associated with continuous high temperatures; (4) and that there is a corresponding reduction in mortality.

The following case of lobar pneumonia was under observation from an early period; and chloride of calcium, to the exclusion of ordinary antipyretics, was administered in full and frequent doses from the second to the eighth day of the treatment.

Case I.—Prisoner No. 7,635 A., H. G., Hindu, *æt.* 32, was received in the Presidency Jail, Calcutta, in a poor state of

health on *June 26, 1894*. This being the rainy season he was subjected to the effects of damp and chill, in addition to the depressing influences of jail life and lowered vitality. He was thus a suitable victim for pneumonia.

On the evening of *July 13* he was admitted into the jail hospital. The civil hospital assistant noted that he was suffering from fever (temp. 102.6° F.), severe headaches, great weakness, rapid breathing, quick pulse, acute pain in the left side of the chest, with some dulness and fine crepitations over the lower lobe of the left lung.

On the morning of *July 14*, when I saw him for the first time, he appeared to be very ill, and was suffering from the usual symptoms of a well-marked lobar pneumonia, which was in a transition stage from acute congestion to consolidation. His temperature was 105° F., and remained so nearly all day. The civil hospital assistant had been giving him a diaphoretic and cough mixture, and also antifebrin. I stopped these medicines and prescribed chloride of calcium¹ in water, to be given every four hours. Owing to his weak condition a little aromatic spirit of ammonia in rum was given separately two hours after each dose of calcium chloride. The patient was dressed in flannel clothes, and his chest was enveloped in a spongio-piline jacket.

On *July 15* the temperature ranged between 102.4° and 104.2° F. Most of the lower lobe of the left lung was consolidated, while the under part of the upper lobe was in the stage of acute congestion. Nevertheless the patient was very much relieved and improved, and was suffering comparatively little distress. He had slight diarrhoea which was easily controlled.

On *July 16* the temperature fell suddenly and decisively, ranging from 100.2° to 99° F.; in fact, this was the day of the crisis. There was now consolidation of a small portion of the upper lobe in addition to the greater part of the lower lobe of the left lung.

On *July 17* redux crepitations were observed, and the stage of resolution fairly set in. From this time onwards the

¹ On the temperature chart (1) the daily amounts and actual doses of chloride of calcium are noted.

temperature never rose above 99° F., and the patient made an easy and rapid recovery.

On *July* 20 the left lung was practically clear, and the temperature normal. In spite of this he awoke screaming about 8.30 p.m., and talked incoherently until 2 a.m. There was no assignable cause for this delirium, which occurred on this occasion only during his illness.

On *July* 21 the chloride of calcium was discontinued; cod-liver oil emulsion and a stimulant expectorant mixture were substituted.

On *July* 27 the prisoner was discharged cured to the convalescent gang.

Owing to the patient being a prisoner, it is extremely probable that he came to hospital, and was under observation, on the first day of the attack; in this case the crisis may be calculated to have occurred on the fourth day. It is not claimed that calcium chloride caused this early crisis, which has been known to happen on the third day; but the impression produced on my mind was that the patient's sufferings and his general symptoms were rendered much less acute from the time he was fairly under the influence of calcium chloride. In conclusion it may be noted that the drug was prescribed in somewhat heroic doses, over one ounce being given in seven days.

Case II.—The next case is one of alcoholic pneumonia, which was under treatment much about the same time. Here also the morbid process in the lung was under observation from its commencement.

H. J. C., European, *æt.* 29, was admitted into the Presidency General Hospital, Calcutta, on *July* 10, 1894. There was a history of hard drinking during the previous month, and the patient's symptoms were those of alcoholism bordering on delirium tremens. He was treated accordingly.

July 12. Continuous fever commenced, ranging from 102° to 104.4° F. Phenacetin was freely administered without much effect. On *July* 13, antifebrin and an ordinary diaphoretic mixture were substituted for phenacetin. Rhonchi were audible

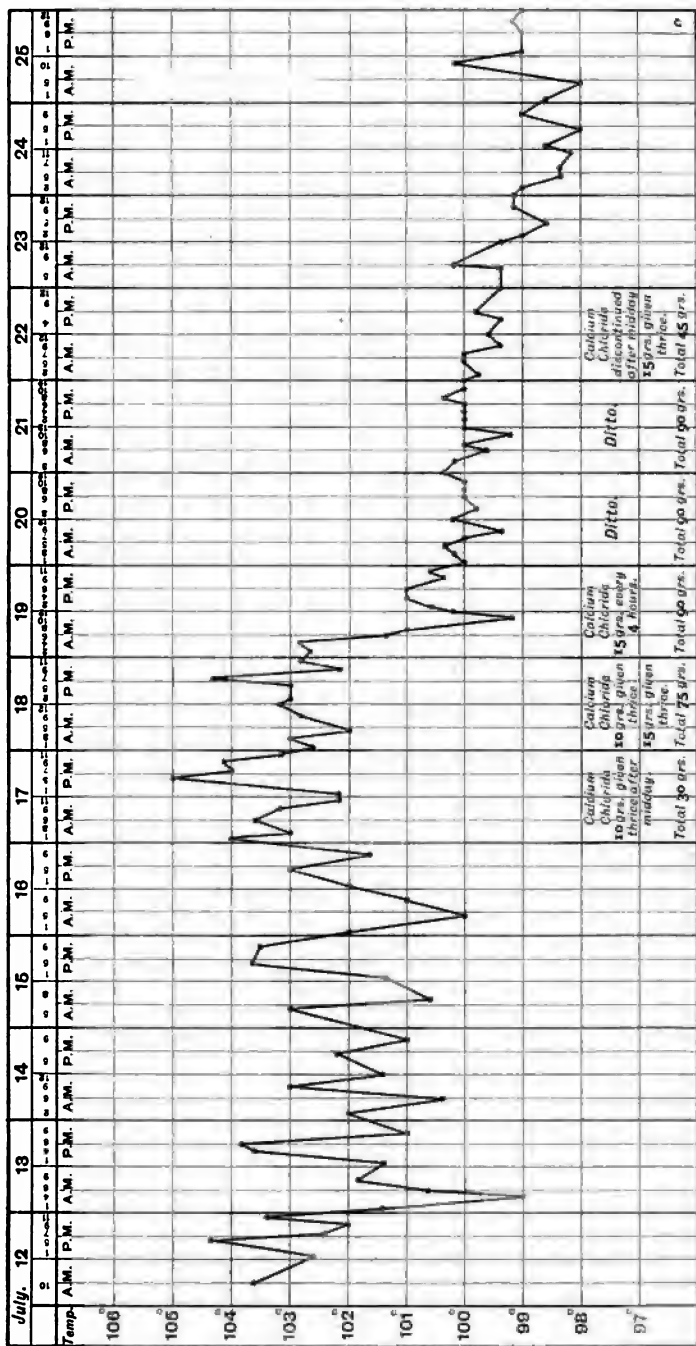


CHART 2.

at both bases posteriorly; but no dulness could be detected. The symptoms of alcoholism continued.

July 14. In the evening he experienced acute pain outside the right nipple and in the mid-axillary region; but no friction was heard, only coarse rhonchi. On *July 15* he developed a troublesome cough with bronchitic sputa. The pain near the right nipple was much less, and only sonorous rhonchi were audible. He was in a very weak and shaky condition, tremulousness being very marked. Strophanthus and stimulants were ordered on account of the weak action of the heart.

July 16. Sonorous and sibilant rhonchi were audible all over the chest. Pleuritic friction was distinct in the right mid-axillary region, though pain was very slight.

July 17. Last night was the worst he has had so far. The cough was very troublesome, and the fever continued high. Tremulousness was still very marked. I examined his chest at noon, and for the first time detected a patch of dulness at the right apex; while between the right clavicle and the nipple coarse crepitations, as well as rhonchi, were very pronounced. Treatment with chloride of calcium, in ten-grain doses every four hours, was commenced at 1 p.m. At intervals of four hours, between the doses of calcium chloride, he got a stimulant mixture and some alcohol. At 5 p.m. the temperature rose to 105° F.

July 18. He passed a fair night, though slightly delirious and talking in his sleep. The cough and pain were much less troublesome. The area of dulness had extended below the level of the clavicle, and medium crepitations were audible. A small patch of dulness had developed at the inferior angle of the right scapula. Rhonchi were scattered all over the chest. The dose of chloride of calcium was increased at noon from 10 to 15 grains every four hours, since the smaller doses seemed insufficient. The conjunctivæ slightly jaundiced. The temperature was more constant during the twenty-four hours after the calcium chloride was commenced. During the second twenty-four hours, when the dose was increased, there was a very marked fall to 99.2° F.

July 19. During the night he was restless, delirious, and picking at the bedclothes. Pulse very weak and rapid. The

area of consolidation had extended posteriorly from the apex to below the inferior angle of the scapula. It was enlarged anteriorly also down to the third rib, and there was a well-marked patch of pleurisy about this level. Tincture of digitalis, in \mathbb{M} v doses, was added to the stimulant mixture on account of the state of the pulse.

July 20. During the night he was delirious at times, and tried to get out of bed. Still jaundiced. The area of lung dulness had begun to recede; tongue cleaner and less tremulous, also less tremor of the hands. The fall in the temperature continued, and there was a marked improvement from this time onwards.

July 21. Passed a good night, though still delirious at times. The lung is clearing up rapidly, especially anteriorly and laterally.

July 22. Chloride of calcium was discontinued, and a stimulant expectorant mixture substituted. The patient seemed very much improved in every way.

July 23. Very slight dulness remains, though cough is still troublesome. *July 25,* lung clear, scarcely any cough. *July 27,* a mixture containing strychnine and iron prescribed. *July 30,* troubled by a crop of small boils and prickly heat. *August 12,* discharged cured.

It may be argued that the crisis occurred in this case on the seventh or eighth day, and that the chloride of calcium had nothing to do with the fall in the temperature. A glance at the chart (2), however, reveals the tendency of the temperature to keep much more regular and steady after the treatment with chloride of calcium was started. From noon on *July 17* to noon on *July 22*, five complete days, the patient got seven drachms of chloride of calcium.

THE EVIL EFFECTS OF CONSTIPATION UPON MYOPIC EYES.

BY GEORGE WHERRY, M.A., M.C. CANTAB.,

University Lecturer in Surgery.

LIVING among book-learned people, the complications of myopia are often before me—such as ugly squints, *muscæ volitantes*, hæmorrhages into the vitreous, and detachments of the retina. These bring home to one's mind the fact that myopia is a disease rather than a defect. A myopic tendency in the eyeball at childhood may progress at an appalling pace, and even in adult life may be aggravated into a progression or complication of a dangerous kind, so that, as Donders remarks, "progressive short sight is in every case ominous of evil for the future."

The hygiene of the eye has been considered by various writers who have felt the importance of their subject, and the treatment of errors of refraction has received the attention it deserves—one of her Majesty's inspectors of schools in translating Cohn's book ¹ gave evidence of the interest that thoughtful people outside the profession take in our work ; but I venture to think that the medical aspect of myopic cases is not always gone into, and that we are sometimes too mechanical in our treatment.

As far back as 1883 I quoted a case in point, and drew attention to the common occurrence of habitual constipation in myopic persons, who are usually great readers taking pleasure in books and indoor life. By their sedentary occupations their constipation is kept up and is difficult to treat. For the sake of

¹ *Hygiene of the Eye*. Translated and edited by W. P. Turnbull, formerly Fellow of Trinity College, Cambridge.

clearness I will divide the cases under consideration into groups.

1. *Young Children with Progressive Myopia*.—Example: A bright, intelligent, healthy child of $4\frac{1}{2}$ years old, normal-sighted, is troubled with habitual costiveness which goes on for a year or more; twice a week was considered quite a usual action of the bowels unless great care was taken. At $5\frac{1}{2}$ the short sight was very definite, $V = R \frac{6}{24}$, c. -1.25 D = $\frac{6}{8}$ partly; $L \frac{6}{18}$, c. -0.75 D = $\frac{6}{8}$. The constipation being relieved then entirely, during the next nine months the vision and myopia remained the same. There was probably a very slight increase of myopia in the right eye. The child then had in one year both whooping-cough and measles; the myopia increased to -2.25 D in right, and -1.25 D in the left, the bowels continuing quite regular. The child had no other malady than those above mentioned, but it will be understood that it was hard to keep the child away from books during the later period.

There was no hereditary tendency to myopia on the mother's side. The father was normal-sighted, but of his family two out of four were rather short-sighted.

In this case I consider the child's eyes were influenced for evil by constipation, though with it there was no apparent ill-health, and no doubt the other ailments later on proved serious for the eyes. The stationary intermediate period of the myopia was marked by no costiveness and no illness.

Bananas for breakfast, brown bread, and cascara sagrada in chocolate proved most useful.

2. *Anæmic Myopes*.—These are mostly young women coming to my out-patient service at the hospital with muscæ volitantes, or needle-women unable to follow their business without great distress of the eyes, the constipation being often a part of their anæmia. Examples:

Georgina C., kitchenmaid, æt. 18, very anæmic and costive (from three days to six), with large atrophic patches in both eyes, especially in the right, myopia of 10 D in right. She was soon able to follow her occupation after treatment with nuxvomica and iron: glasses were also given.

Sarah Ann S., æt. 43, married. Always constipated; can no longer sew or help her family. Cod-liver oil relieved her bowels

and her eyes. Her myopia amounted only to 1.75 D. In four weeks she was entirely relieved. Glasses were given for distance when she was discharged.

Implication of the optic nerve is difficult to exclude in some anæmic cases, but fortunately the treatment is clearly marked out for us.

Alma R., *æt.* 20, has myopia in right — 14 D sph., in left — 13 D. Her constipation is quite serious. She often goes seven days without an action, and strains at stool. Treatment by diet and cascara sagrada. Glasses afterwards provided. She was two months under care.

Margaret F., *æt.* 24, servant, suffers from *muscæ volitantes*, and is unable to do near work. Her refraction is not far from normal. She is very anæmic, and so serious was her constipation that she had to be treated in bed in the hospital, as she had been previously on occasions. She was relieved in four weeks.

Ellen W., *æt.* 30, presents herself with subconjunctival hæmorrhages, the result of straining at stool. She is anæmic as well as costive, and obtained great relief by treatment; but of her vision it is difficult to judge, because she does not know her letters.

Ellen W., *æt.* 33, again presents herself. Married; four children, nursing another; has the anæmia of lactation. Great costiveness; often goes seven days. She exhibits subconjunctival ecchymosis caused by straining at stool.

3. *Cases with eyes fairly normal, in which constipation brings on amblyopia or eye-troubles.*

Emily K., *æt.* 11, at school, comes with frontal headaches which have lasted one year. During the past three weeks her eyes have failed her. Vision in R. is $\frac{5}{24}$, in L. the same. Her refraction was near the normal. Her constipation was treated with compound liquorice powder, and she was given quinine. Her relief was extraordinarily rapid, so that in thirteen days her vision in each eye was $\frac{5}{12}$, but I did not see whether her recovery became complete because she returned to her school.

Polly L., *æt.* 17, has a slight degree of hypermetropia and some ciliary spasm; her vision is reduced to $\frac{5}{24}$. Castor-oil was used to relieve her costiveness. Her habit was to go three to five days without a motion. The eyes improved so much that

glasses were not given, after atropine had been used to the eyes to enabled me to examine thoroughly.

James P., *æt.* 16, farm-labourer, suffers from habitual constipation, so that he "faints away" in the fields. He is unable to work, not being able to face light. His condition of photophobia was cured by cascara and cod-liver oil. He was under observation from April to July 1892. His vision was normal— $\frac{1}{2}$ in each eye—and he could read. This he could do even when he was unable to follow his occupation.

Elizabeth B., *æt.* 21, in service, comes to me suffering from photophobia. Her vision is normal in the right, nearly so in the left. Constipation is the cause of her symptom. She has used a pint and a half of soap and water every other day as an enema during two years. She was treated by cascara and reduced iron, and her eyes were relieved after nearly three months' inconvenience and eight visits to the hospital from her village at a distance.

Rose W., *æt.* 16, comes to complain of her eyes, saying that she cannot do her needlework. There is nothing to be found to account for this fatigue. Her costiveness—she often went five days unrelieved—being removed, she recovered in one month.

Maria C., *æt.* 41, housekeeper, who sews and reads a good deal, has attacks of acute pain and swellings, sometimes in one eye, sometimes in the other. After a quite sudden and darting pain the eyelids swell. She is costive, going to stool every three or four days only. Her eyes were not defective, and she recovered. She was under observation two months. I was not sure that her eyelid-swellings were not due to urticaria associated with the constipation.

Florence W., *æt.* 25, cannot work or read now, except for a short time, or follow her occupation. She is normal in vision in each eye, and has brown stains beneath the conjunctiva (? from hæmorrhages). She was relieved by attention to her bowels, no glasses or other optical help being needed.

The following is a more unusual case, which I have quoted elsewhere: In December 1883, I brought before the Cambridge Medical Society a case of unocular diplopia. The patient was an intelligent observer, an undergraduate who was an amateur astronomer. He had peripheral patches of choroiditis

in his left eye, and in both the usual crescentic atrophy near the optic nerve of myopia. His refraction was: L. — 3 D sph. c. cyl. — .5 D, axis nearly horizontal. R. — 4.5 D sph., with which vision was nearly $\frac{5}{8}$. Atropine was used for the left eye, and ten days after this he saw double with the left eye when the right was covered. In looking at a test letter the images overlapped, one being more distinct than the other. This symptom lasted during three days. On September 15 he saw double with the right eye when the left was covered; the images were exactly one above the other, and of equal distinctness; they overlapped when near, and became separated when the object was moved farther away. This diplopia existed whether he used his glasses or not. On October 19 he was inconvenienced by seeing images in complementary colours of any bright object he looked at, but no more double images. After-images may be produced by using one unaided eye and gazing at a black letter on a white board, and then looking at a point rather lower down at the same letter; and by practice, whole rows of letters can be obtained as double images; the white after-images gradually fading away. This does not, however, explain the diplopia in this case. Eighteen months previously he had had an attack of iritis in the left eye.

Habitual costiveness was his trouble; he had never had syphilis, rheumatism, or any other malady, and he was relieved of the complications of his myopia when the constipation was recovered from.

It would weary the reader to have more cases recorded. Enough has been written to prove that in patients complaining of their eye-troubles, the relief of their costiveness has done much for their eyes. It is not surprising that the chronic congestion which leads to headache, or other well-known symptoms, in costiveness, should cause functional disorders of the eyes; and when one thinks of the straining at stool which occurs, and causes conjunctival ecchymoses and the like, the thought of the myopic eye, with its thin coats, having to stand such a strain constantly, makes it seem wonderful that even more evil results are not manifested as serious structural lesions, such as intraocular hæmorrhages or retinal detachments.

The vendor of the quack pill must often farm the disorder which he promises to cure, and every person made into a pill-taker becomes a source of income to the advertiser. Our duty is more difficult in the treatment of constipation; we must find a rational plan fitted for each case. With some, Blaud's pills and Fowler's solution may be chiefly needed; with others, cod-liver oil. Careful diet, with regard to idiosyncrasies and habits of the patients, will enable us to give real help; and our knowledge, firmly based on well-arrayed clinical facts, will bring us the rewards which fall to the seekers after truth.

Reviews.

The Ophthalmoscope: A Manual for Students. By GUSTAVUS HARTRIDGE, F.R.C.S., Surgeon to the Royal Westminster Ophthalmic Hospital. Second Edition. 8vo. pp. 156, with 67 illustrations and four plates. London: J. and A. Churchill. 1894.

WE cordially welcome a new edition of Mr. Hartridge's excellent guide to the understanding of an interesting but difficult subject. It is concisely written, and the descriptions of the appearances seen by means of the ophthalmoscope in the normal eye and in its diseased conditions are all that could be desired. The present issue of the work is slightly increased in size, and new plates and woodcuts have been added, very much enhancing the value of the book. It is certain to be appreciated by all those engaged in ophthalmoscopic work.

The Pharmacopœia of the Hospital for Diseases of the Throat (Golden Square). Fifth Edition. Edited by F. G. HARVEY, F.R.C.S. Ed., Surgeon to the Hospital. 8vo. pp. 112. London: J. and A. Churchill. 1894.

THE fifth edition of the *Pharmacopœia of the Hospital for Diseases of the Throat* has undergone considerable and important alterations. Many new formulæ have been added, chiefly in respect to the newer drugs, for medicated wools, lozenges, insufflations, gargles, and nasal douches. The annotations appended to many of the formulæ indicating the cases in which benefit is most likely to follow their use will be found useful by the practitioner. The diet tables recommended are those of the London Hospital. The little book is most accurately printed, and reflects credit on its editor. A convenient alphabetical arrangement is adopted in the text. We are sorry that its size should have been increased by some thirty pages of advertisements, which mar its portability.

Refraction of the Eye: its Diagnosis, and the Correction of its Errors. By A. STANFORD MORTON, M.B., F.R.C.S. Eng., Assistant Surgeon to the Moorfields Ophthalmic Hospital, &c., &c. Fifth Edition. London: H. K. Lewis. 1894.

THIS work has now reached its fifth edition, which is a sufficient testimony of its value and usefulness. In the present instance the subject matter has been revised and partly rewritten, in such a way as to make it more practically useful to the student and practitioner. The resulting changes, however, are slight, and this sufficiently indicates the care which was bestowed on the work at the outset.

Now that the ophthalmoscope is part of the armamentarium of almost every practitioner, such a work as the present one should be of the greatest possible service, not only to beginners but to all who systematically use the instrument. The method of giving numbered "indications" to the various tests and observations serves to keep the information very clear and concise, and is to be recommended. As in the previous edition, specimens of test-types are appended.

Considering the large number of works on this branch of practice which are constantly appearing, it must rightly be a source of gratification to the author that his book holds its own so well, supplying as it does a handy guide to the examination of the phenomena which indicate the state of a patient's refraction.

Handbook of Diseases of the Nose and Pharynx. By JAMES B. BALL, M.D. Lond., M.R.C.P., Physician to the Department for Diseases of the Throat and Nose at, and Physician to, the West London Hospital. Second Edition. London: Baillière, Tindall, and Cox. 1894.

IN issuing a second edition of his well-known handbook on diseases of the nose and nasopharynx, Dr. Ball has very wisely included a more extended consideration of the pharynx as a whole. This addition, while causing no material increase in the size of the work, has rendered it more complete and satisfactory. At the same time, space has been found for a few corrections, and for brief references to all the most important contributions which have been recently made in this special branch of practice.

The plan of the work is well proportioned, and one to be commended. An introductory section of some seventy pages deals with all necessary points in the anatomy and physiology of the regions concerned; then follow sections on the general methods of diagnosis, and the application of the various therapeutical means employed. These outlines save a considerable amount of unnecessary repetition in the later description of individual diseases

Each ailment, with its causes, symptoms, diagnosis, and special treatment, occupies a separate section ; and, while all theoretical discussions are either minimised or avoided, nothing of essential importance appears to be omitted. The work is well printed and portable, and illustrated by numerous very satisfactory diagrams. It forms within a moderate compass a well-considered compendium of all the important facts : and it will no doubt be found decidedly useful by practitioners and senior students who may be interested in the subjects of which it treats.

On Diseases of the Lungs and Pleuræ, including Consumption.

By R. DOUGLAS POWELL, M.D. Lond., F.R.C.P., Physician to the Middlesex Hospital. Fourth Edition. Cr. 8vo. pp. 600, with illustrations. London : H. K. Lewis. 1893.

THE original plan has been followed in the present edition of Dr. Douglas Powell's classical monograph on diseases of the lungs, but every chapter of it has undergone a thorough revision. The sections on examination of the sputum, on asthma, and on the surgical treatment of pulmonary cavities, and the numerous chapters dealing with phthisis and other forms of tuberculosis, are each brought fully up to date, and afford highly instructive and interesting reading. Chapter xix. deals with actinomycosis of the lungs. The author cites an interesting case under his own observation, and describes the methods of staining and demonstrating the actinomycetes. Likewise we have a chapter on hydatid disease of the lungs, a condition which not infrequently the surgeon has to diagnose for us. Illustrative cases of hydatid of the lung and dermoid cyst of the lung are also described. Not the least important parts of the work are those devoted to treatment, especially as the unique experience of the author is embodied in these pages.

We have briefly directed attention to the chief points of the new edition of this deservedly popular treatise, which we cordially recommend to the notice of our readers. The perusal of it will afford a clear and accurate impression of the subject of which it treats.

Diseases of the Skin : An Outline of the Principles and Practice of Dermatology.

By MALCOLM MORRIS, Surgeon to the Skin Department, St. Mary's Hospital, London. 8vo. pp. 556, with 8 chromo-lithographs and 17 woodcuts. London : Cassell and Co. (Ltd.). 1894.

THE almost daily increasing interest in the study and treatment of affections of the skin is evidenced by the many new works on dermatology published within the past few years. We owe

the stimulus in this direction to the Vienna school, which has done so much towards scientific precision in dermatology. Mr. Malcolm Morris's book is one of the recent additions to the excellent series of *Clinical Manuals* published by Messrs. Cassell and Co., and reflects the greatest credit on its author. He gives us a full, clear, and accurate description of clinical facts, and lucidly sets forth the diagnosis and principles of treatment based on the results of the most modern researches as to their ætiology. Having dealt with the pathology of the skin, with classification, and the principles of diagnosis, he introduces us to the study of affections of the skin depending on nerve disorder, no fewer than six chapters being devoted to this group of diseases. Under this category we find excellent descriptions of Raynaud's disease, Morvan's disease, pemphigus, herpes, leucoderma, and diabetic and hysterical gangrene. Chapter viii. is devoted to the general principles which underlie the treatment of the class of diseases just mentioned, and many valuable hints may be gleaned from its perusal. The subject of Drug Eruptions is handled by the author in a highly satisfactory manner. He discusses the iodide and bromide eruptions, trade eruptions, eruptions due to the internal administration of certain articles of food or particular medicines towards which an idiosyncrasy is exhibited by the patient; such, for example, as belladonna, mussels, iodoform, sulphonal, arsenic, and oleo-resins.

We are especially pleased to read the remarks on Vaccination Eruptions. Mr. Malcolm Morris, who has particularly studied this important subject, divides vaccination eruptions into two groups: Eruptions due to pure vaccine inoculation; eruptions due to mixed inoculation, that is to say, to vaccine together with an additional virus. Every kind of eruption connected with vaccination can be classed under these two headings. There is one vital point of difference between the eruptions in the two groups respectively. The eruptions belonging to the first group depend chiefly on idiosyncrasy, and are therefore practically unavoidable, whereas those comprised under the second group can be prevented by using only pure vaccine lymph with the strictest antiseptic precautions.

Under Leprosy Mr. Malcolm Morris fully expresses his opinion on its contagiousness. He says "it is certain, however, that leprosy is not contagious in the sense in which syphilis is contagious, but only in a limited sense like tubercle. The bacillus may be implanted by contact, but it can only take root when the soil is particularly favourable to its development. In what this favourable condition of the soil may consist is not exactly known, but it is probable that the mode of life, hygienic surroundings, and constitutional state of the patient have a power-

ful influence in determining the degree of his susceptibility to the infection."

Due attention is given to such rarities as *acanthosi nigricans*, *pityriasis rubra pilaris*, *xerodermia pigmentosum*, and the like.

In strongly commending this work to the favourable notice of the profession we have but to add that it exhibits the author at his best; that he gives us the benefit of his mature experience as a teacher and as a student; and presents in a comparatively small compass one of the best modern expositions of the science and art of dermatology as studied at the present day. The chromo-lithographs deserve special notice, and are valuable additions to a work which has been most carefully printed throughout.

Clinic of the Month.

Haemorrhagic Pleurisy.—M. Lépine communicated to the Société des Sciences Médicales of Lyons three cases of this kind. The first patient was a robust man with fluid in his chest. Two litres were removed. The fluid was bloody, and contained 2,500,000 red corpuscles to the cubic millimetre. In the second case the proportion was 1,200,000 red corpuscles per cubic millimetre. The third case was that of a strong man, who six months before had had pneumonia, followed by dyspnoea which had caused him to cease work. Bloody fluid was withdrawn from his chest, the proportion of red corpuscles being 500,000 to one cubic millimetre. Tubercle bacilli were not present. There was no sign of tuberculosis in the patient. His wife, however, was tuberculous, and seven of their children had died of meningitis; but as he had been separated from his wife for sixteen years, infection from her was unlikely. (*Lyon Médical*, vol. lxxv. No. 12, 1894.)

Case of Pseudo-hypertrophic Paralysis with Contracture.—A case of this kind was lately brought before the Société des Sciences Médicales of Lyons. A, aged sixteen, had well-marked pseudo-hypertrophic paralysis. There was no family history of the disease. The muscles of the lower limbs presented the usual signs of hypertrophy; but, in addition, the thighs were flexed on the pelvis, and the legs on the thighs. In the upper limbs there was atrophy rather than hypertrophy. The breathing was diaphragmatic. The sphincters were intact. (*Lyon Médical*, vol. lxxv. p. 550, 1894.)

Melanosis.—At a meeting of the Dermatological Society of London, Mr. Jonathan Hutchinson showed a case of lentigo-melanosis of the cheek in a woman of sixty-five, in which a melanotic sarcoma had developed in the centre of a pigmented area of skin, and was said to be of two years' duration. No glands were affected. The contrast between the coal-black slightly-raised true melanotic growth, which was of only a few months history, and the marginal staining, was very decided. (*Brit. Journ. of Dermat.*, vol. vi. p. 183, 1894.)

The Origin and Treatment of Tetanus.—M. Roy des Barras communicated the following four cases to the Academy of Medicine, Paris. The first case was that of a young man, *æt.* 28, who fell and wounded his cheek on a flint in the floor of a cellar. The room he lived in faced a stable which had had in it five years previously the harness of a horse which had tetanus. Four days later fatal tetanus set in. An unusual feature in this case was facial paralysis. A bacteriological examination of the soil yielded no results. The second patient was a young child, *æt.* 7, with a contused wound of the thumb, into which the soil of a stable was accidentally rubbed. Tetanus set in on the twelfth day, and amputation of the thumb was done the day after, with immediate good results and a final cure. The third case was that of a mattress-maker, who refilled the mattress of the previous patient. A month later she injured the sole of her foot with a nail; unquestionably she had retained on her body or her clothes the virus of tetanus. The result was fatal. The fourth patient was a man of 28, mangled by a driving belt, who was taken to hospital wrapped in a horse-cloth which was in contact with his numerous wounds. A rapidly fatal tetanus set in on the ninth day. It was not known if the horse-cloth had been on an animal affected with tetanus. Chloral and antitoxic serum, employed perhaps too late, could not prevent death. Of these cases three were of animal origin. The first showed the long existence of the tetanic virus. The only case to recover shows the value of amputation in tetanus. Finally, the third case apparently shows well a new instance of contagion conveyed by an intermediate human subject. In relation to prophylaxis, these cases show the necessity of disinfection of articles and localities infected with tetanus by man or beast. To effect this M. Roy des Barras suggests that tetanus should be added to the lists of diseases compulsorily notified by veterinary surgeons, just like hydrophobia and anthrax. Although the use of an antitoxic serum failed, M. Roy des Barras would employ it as a prophylactic in contused wounds, soiled with earth, in the case of stablemen and grooms. (*Progrès Médical*, No. 33, p. 117, 1894.)

Ingravescent Cerebral Hæmorrhage treated by Ligature of the Common Carotid Artery.—Dr. F. X. Dercum reports the case of a gentleman, *æt.* 50, who first experienced slight weakness in the left arm on February 11 at 8 a.m., and of the left leg the same evening. In spite of treatment the symptoms were more marked the next morning. All that day he remained about the same; but the following morning there was a decided increase in the paralysis, which continued to progress till the evening of the next day, February

14. By this time there was complete paralysis of the left arm, very decided paralysis of the leg, and paralysis of the lower half of the left side of the face. There was no paralysis of sensation. There was a dull feeling in the head and slight giddiness, but no mental disturbance whatever. The arteries were somewhat atheromatous; urine of sp. gr. 1018, no albumen. A diagnosis of ingravescent cerebral hæmorrhage was made, and ligature of the right common carotid artery recommended. The patient having freely given his consent, the operation was performed by Dr. W. W. Keen at 11 o'clock the same evening, cocaine being used locally in place of a general anæsthetic. The patient bore the operation well. Next morning it was evident that the progress of the paralysis had been stayed, and his condition was much the same as before the operation. On the following day a very decided return of motor power was noticed in the affected limbs, and from this time he steadily continued to improve. When seen two months later there was a very slightly spastic condition of the limbs on the left side, and the deep reflexes were somewhat increased, but the patient had a good deal of power on this side. Dr. Dercum considers that the symptoms pointed to a progressive capsular hæmorrhage. (*Journ. Nerv. and Mental Dis.* vol. xxi. No. 9, p. 586, September 1894.)

Unusual Case of Graves' Disease.—At the Royal Academy of Medicine in Ireland, Dr. James Craig showed a girl, 24 years of age, suffering from this disease, in whom the condition of the eyes was the special feature. Dr. Johnston had divided the outer canthus of each eye, and had made incisions in the swollen mass. Dr. Craig said he could find no evidence that eye complications so serious had been observed before. He said that in all cases of Graves' disease where the exophthalmos prevents the lids from meeting over the eyeballs, every precaution should be adopted by the medical attendant to lessen the corneal exposure and reduce the proptosis. Amongst the methods that have been found useful for these purposes are tightly applied muslin bandages over the eyes, and the application of tincture of iodine to the upper lids. When the protrusion is very great, the eyelids may be stitched together, or even, in order to lessen the palpebral orifice, the upper and lower lids should be united in the region of both commissures, by vivifying their edges for some distance and stitching them together so as to bring about a permanent union. (*Dublin Journ. of Med. Sci.* vol. cclxx. p. 508, 1894.)

The Persistence of Albuminuria after Recovery from Nephritis.—L. Bard refers to the views of Lécorché and Talamon, who describe two recoveries of the kidney after

acute Bright's disease, namely, the anatomical and the functional. Whereas the former is very rare, and principally met with after scarlatinal nephritis, the latter is usually productive of some degree of hypertrophy of the left ventricle. Bart, however, maintains that a third form of recovery exists, which he terms "cicatricial," and which, if not a *restitutio ad integrum*, is nevertheless a cure from the clinical point of view, though albuminuria may persist. Two cases observed by the author are described. In the first there existed a hitherto unrecognised post-scarlatinal nephritis of some months' standing. Though as the result of energetic treatment the percentage of albumen diminished rapidly at first, 0.40 centigrammes per litre persisted for two years; and now after six years a trace still remains. The general condition has been satisfactory, growth has continued, and intercurrent affections have been unmodified. The author proceeds with a description of the other case; and while discussing the means of diagnosis, states that the quantity of albumen is of secondary importance. Finally, he considers that this albuminuria is the result of an imperfect regeneration of the altered renal elements, which condition, however, will not lead to any other symptoms. The urine requires to be watched, but no special treatment is called for. (*Lyon Médical*, vol. ii. p. 355, 1894.)

The Pathology of Graves' Disease.—Dr. Rankin reports a case in which the sequence of events is sufficiently suggestive to make it worthy of record, though, as he says, no accurate conclusion can be arrived at from the observation of a single case. There was little room for doubt that the patient, a woman, was the victim of an acute attack of bulbar paralysis. A *post-mortem* examination was not allowed, but Dr. Rankin considers that the onset of bulbar paralysis was proof positive of disturbance of some sort in the medulla oblongata. Now it is admitted that the succession of symptoms presented by women at the time of their climacteric is due to some interference with vaso-motor stability. It is also believed by many competent observers that the various phenomena of exophthalmic goitre are best explained by a hypothesis of paralysis, or at least interference with the proper action, of the various centres found on the floor of the fourth ventricle. The presence of a vaso-motor centre in the upper part of the floor is an established fact, and there is reason to believe that there is probably another centre in its immediate vicinity regulating the action of the sweat glands, and yet another close by having under its control the body temperature. In close juxtaposition are the nuclei of the vagus, hypoglossal, spinal-accessory, auditory, and other important nerves. Successive disturbance of these several

centres would explain, in every detail, the varying features of this interesting case, and it is at least a fair assumption that the bulbar paralysis was as likely to be due to extension of existing mischief in the medulla as to any other and more remote cause. (*Birmingham Medical Review*, vol. xxxv. No. 190, p. 361, 1894.)

Abscess of the Liver in Children.—M. Proust, on behalf of Dr. Legrand, of Suez, communicated to the Academy of Medicine notes of two cases of abscess of the liver. Zancarol, of Alexandria, had noted 562 cases over a period of twenty-four years, without meeting with one in a child. The first was in a little Italian girl, *æt.* 5, secondary to chronic dysentery. An incision over the right lobe let out about 500 grammes of pus. The superficial wall of the abscess was about 2cm. thick and was incised with the thermocautery. Several weeks later an abscess appeared in the left lobe of the liver; operative treatment was not allowed, and the abscess discharged itself into the large intestine; death took place from pyæmia. The second case was in a young Arab, *æt.* 3, a sequel to dysentery. An incision let out half a litre of pus, and a complete cure was effected. A year later death took place from broncho-pneumonia following measles, without a relapse in the meantime taking place. (*Progrès Médical*, No. 31, p. 73, 1894.)

Impacted Gall-stone removed from the Duct.—At a meeting of the Suffolk (U.S.A.) District Medical Society, Dr. J. W. Elliot read the case of a woman, *æt.* 39, subject to bilious attacks for fifteen years, which had been gradually increasing in frequency, especially the two last years. She had been very ill for some days when she first came under his observation. There was a moderate general icterus. The abdomen was full and tympanitic, but on the right side, starting in the hypochondrium and extending downwards, was a pyriform tumour, dull on percussion, the dulness being continuous upwards with that of the liver. The tumour had rounded borders, and was fluctuating and moderately tender. An incision above and to the right of umbilicus showed that the tumour was a distended gall-bladder, containing three pints of bile and twenty stones; the contents having been evacuated it was stitched to the abdominal wound, no attempt being made to clear the duct owing to the feeble state of the patient. For the next two months the patient remained in a poor state, and the gall-bladder and ducts were twice examined both with the finger and a sound, but no stone could be detected. The abdomen was then opened again just internal to the previous opening; and the adhesions of the gall bladder having been removed, the duct was thoroughly explored

with one finger in the gall-bladder and the other hand in the abdominal cavity. In this way it was found that the duodenal end of the duct was blocked by a calculus. The duodenum was in front and was adherent to the common duct. This, having been dissected off, was incised, and a stone as large as a pigeon's egg removed. Some smaller stones were found in a pocket in the duct close by. The finger was then easily passed back into the cystic and hepatic ducts. The incision in the duct was closed with silk sutures, gauze was packed about this part of the duct and brought out of the wound; two separate dressings were used, one for the operation wound, the other for the sinus of the gall-bladder. The patient did very well, and left three months later with only a small sinus from the gall-bladder. (*Bost. Med. and Surg. Journ.* vol. cxxxi. No. 4, 1894.)

Morphinomania Cured by Rapid Suppression of the Drug.—A, a woman of twenty-two, had taken morphine for three years. By degrees she had come to take $7\frac{1}{2}$ grains of morphine in the day. When admitted into hospital this quantity was reduced to $\frac{9}{16}$ grain a day, five days after to $\frac{6}{16}$ grain, at the end of eight days to $\frac{3}{16}$ grain. In another week's time all morphine had been stopped. The patient was gaining weight, had lost her cachexia, and was, to all intents and purposes, well. (*Lyon Medical*, vol. lxxvi. No. 23, p. 197, 1894.)

Lead-Palsy in Children.—Dr. Wharton Sinkler, of Philadelphia, says it is probable that children are not so liable to lead-poisoning as adults; and that immunity is due to their possessing more active powers of elimination. In children it is a noteworthy fact that the paralysis is as liable to affect the lower extremities as the upper. There are but few cases reported in which sensory disturbances have been met with in children. Cerebral symptoms are not uncommon in children. Dr. Sinkler quotes nine cases of lead-palsy in children, and gives notes of three cases which came under his own observation. In his own cases there was not any blue line on the gums, nor any diseased condition of the teeth or gums; the digestive organs were in fairly good condition, and there was no distinct saturnine cachexia. The symptoms presented were those of poliomyelitis. He says that the pathology of lead-poisoning in children is generally considered as consisting in changes in the peripheral nerves. There is good reason to believe, however, that in many cases the symptoms are due to the direct action of the lead on the muscles. It is also probable that chronic lead-poisoning may produce typical changes in the anterior horns of the spinal cord, and thus give rise to poliomyelitis. He mentions that Dr. Dickson Mann asserts that potassium iodide has no power as an eliminant of lead, although

he admits that it may be beneficial in some other way in cases of chronic lead-poisoning. (*Medical News* (Philad.), vol. lxxv. No. 41, 1894.)

Abscess of the Brain and Meningitis in Enteric Fever.—M. Josserand brought the following case before the Lyons Medical Society. X, a girl of twenty, had an ordinary attack of enteric fever. This was treated with cold baths. Forty-eight hours before death the patient was seized with delirium, aphonia, and a slight monoplegia. *Post mortem* there was found recent meningitis of a purulent type at the base of the left lobe of the brain; at the level of the ascending parietal and frontal convolutions was an abscess of the size of an orange. M. Josserand pointed out that suppurative meningitis complicating typhoid was rare. He could only find two cases reported in France. He thought it possible that such a condition was due to secondary infection. (*Lyon Médical*, vol. lxxvi. No. 20, p. 97, 1894.)

Death under Ether.—M. Vallas reported this case to the Lyons Medical Society. It was that of a man operated upon for strangulated femoral hernia. There was some vomiting, during which the ether was stopped; it was again continued after sickness had been checked. At the end of some minutes respiration ceased; and despite tracheotomy, artificial respiration, &c., the patient died. It was thought when tracheotomy was performed that some of the fluid contents of the stomach had found their way into the trachea, and *post mortem* this proved to be the case. The myocardium was found to be degenerated, and the lungs intensely congested, with old pleural adhesions on the left side. (*Lyon Médical*, vol. lxxvi. No. 25, p. 258, 1894.)

Removal of Biliary Obstruction by Cholecystotomy and Injections of Ether.—M. Fontan, in a paper read before the Academy of Medicine, related a case in which he had performed cholecystotomy, and where catheterisation of the bile duct, owing to the number of stones present, failing to produce a right of way, he sutured the gall bladder to the abdominal wall. Some drops of ether were injected into the bile duct, and the catheter passed again. This was repeated again and again, the pathway becoming clearer for the catheter at each injection. There was slight sickness after the last injection. Jaundice disappeared rapidly; there was little pain, and the ether was well tolerated. (*Progrès Médical*, vol. xx. No. 28, p. 22, 1894.)

Hysterical Apoplexy with Left Hemiplegia.—Dr. Comby brought forward at a meeting of the Société Médicale

des Hôpitaux, the case of a girl of 18 of a neurotic type, who, happening to be close to a chimney struck by lightning, became unconscious for four days. On her recovery she was found to have lost movement and sensation on the left side, and this loss continued for three weeks. Two years later under the same circumstances recurrence took place lasting forty-five days; and three years later she again had the like symptoms under precisely similar conditions. He considered that the case was purely hysterical. (*Progrès Médical*, vol. i. p. 392, 1894.)

Disease of the Middle Ear after Removal of the Trigeminal Nerve.—In 1893, Czerny operated for the relief of old-standing trigeminal neuralgia, on a patient, *æt.* 26, by the intracranial osteoplastic method of Krause, removing the second and third divisions of the fifth nerve. The patient experienced great relief for a month, when pain in the right ear appeared, which he referred chiefly to the tip of the mastoid. Subsequently this was shown to be due to a disease of the middle ear, with extension to the mastoid cells, and then to the internal ear. Lastly, serious symptoms, apparently indicating intracranial suppuration, set in. The original wound was reopened, when an ununited fragment of bone was found showing a scale of necrosis; there was thickening of the dura mater. There was no pus in the brain, only a dark discoloration of the temporal lobe. The symptoms were immediately relieved, a chronic catarrh of the middle ear alone remaining. The explanation of the case is difficult. There could not have been any injury to the auditory nerve, of which there were no symptoms, especially as the case did not develop until three weeks after the first operation. In criticising the case, Masher opposes the idea of any trophic lesion, and favours rather the theory of vasomotor trouble, of an inflammatory neuroparalytic character, in the middle ear; probably the nutrition of the mucous membrane was so altered by vasomotor paralysis as to afford a favourable soil for the development of pathogenic germs from the nasopharyngeal cavity. He considers that the absence of suppuration does not negative this hypothesis; in particular, the *staphylococcus pyogenes* has been found in the middle ear without the presence of suppuration. (*La Semaine Médical*, No. 47, p. 280, 1894.)

Extracts from British and Foreign Journals.

Chloral Hydrate in Hæmoptysis.—J. Pal has tried the rectal injection of chloral hydrate in hæmoptysis in fifteen cases, beginning with a dose of twenty grains, and finally of thirty-seven grains. The effect was usually manifest in from half an hour to three-quarters of an hour. He repeated the dose several times. It appeared to him to act also as a prophylactic. He had employed other means, such as the bandaging of the arms and legs. In this proceeding he recommends that the bandages should not be kept on longer than half an hour, and should be taken off gradually to avoid the risk of dislodging any pulmonary thrombus which has formed. The bandages should only obstruct the flow of venous blood without impeding the arterial circulation. (*Lyon Médical*, No. 33, p. 559, 1894.)

Recent Views on Diet in Diabetes.—Dr. R. T. Williamson, of Manchester, writing on the dietetic treatment of diabetes mellitus, points out that there are two well-marked forms of the disease—a mild form, amenable to a strict non-carbohydrate diet, and a severe form in which a strict diet does not arrest the sugar excretion. For some years, especially in Germany, the opinion has gradually been gaining ground that in the severe forms of diabetes a very strict diet is dangerous. Thus Leo has pointed out that a great increase of the nitrogenous metabolism, and (as a result) great loss of strength, occur in the majority of the severe cases of diabetes. Therefore treatment in such cases should be directed to diminish the sugar excretion, and also the nitrogenous metabolism. Leo demonstrated that like the fatty food-stuffs, the carbohydrates have the power of diminishing the nitrogenous metabolism, and he has proved that even on a carbohydrate diet cases of severe diabetes manifest improvement and gain in weight, even though the excretion of sugar be increased. Leo considers that this improvement is in part due to diminished nitrogenous metabolism, to a limitation of albumen destruction, brought about by the albumen-sparing influence of the carbohydrates. The quantity of urine, the

body weight, and the nitrogenous waste should be taken as guides in treatment, as well as the amount of sugar excreted. Hirschfeld has shown that in healthy persons acetonuria can be produced by a fatty and albuminous diet. The addition of carbohydrates prevents the occurrence of acetonuria. In cases where the carbohydrates are no longer burnt up in the system, a large quantity of acetone is often found in the urine, in spite of the carbohydrates in the food. Hirschfeld believes that diabetic coma is favoured by the exclusion of carbohydrates in the diet. When the excretion of acetone is great, a strict diet ought not to be advised, but moderate quantities of carbohydrates should always be ordered. He also suggests the use of 100 to 150 grammes daily of glycerine in black coffee when early symptoms of coma appear. He does not recognise any form of acetonuria except the diabetic. Schmitz believes that diabetic coma is due to absorption of toxic substances consequent on the putrefaction of the undigested food in the intestines. We should therefore guard against giving an unduly large amount of animal food in diabetes, as the stomach is unable to digest such large quantities. He also points out the differences in the urine passed at night and during the day. Sugar appearing in the urine eight hours after a meal is formed from albuminates, and is a special sign of the severe form of diabetes. In the severe forms of diabetes Schmitz allows his patients to take food containing starch, and fat in large amount, but only a small quantity of albumen. He finds by such a diet that the general condition of the patient is much improved; the body weight and appetite increase, acetone and diacetic acid disappear in the urine, and in spite of the carbohydrates in the food, the sugar diminishes. Schmitz, Klemperer, and others, have directed attention to the great value of cod-liver oil as a fatty food in diabetes. This is an old remedy which has not been largely employed in the treatment of diabetes. If the patient resents the cod-liver oil, liparine may be substituted. Starch is the only carbohydrate Schmitz would allow; all fruits and sugars he considers injurious. Schmitz therefore in severe cases would allow starch-containing food, which he considers of importance; but he would limit the amount of animal food. In the mild cases he would reverse the treatment, and withdraw carbohydrates from the food. Grube believes that the only way to prevent the acetonuria developing into diabetic coma is by impregnating the system with carbohydrates. Dr. Williamson next refers to the breads suitable for diabetic patients. He considers the home-made preparations as reliable, and less expensive and more palatable than the advertised breads. Ebstein recommends aleuronat. This is a vegetable albumen prepared from wheat. By the addition of ordinary flour, bread

can be prepared from this substance. The following are Ebstein's directions for the preparation of bread: Take about 7 oz. of white flour, about 7 oz. of aleuronat, about 5 oz. of butter, one teaspoonful of salt, and 310 grains of baking powder. The flour and aleuronat are first mixed in a dish warmed to about 30° C., the melted butter and lukewarm milk gradually added, then the salt, and finally the baking powder. The dough is well mixed, formed into loaves, and baked at a good heat. Dr. Williamson has had palatable and cheap cakes made as follows: 2 oz. of finest desiccated cocoanut powder, 2 oz. of aleuronat, 1 egg, and a little milk. The egg is beaten up, and the aleuronat and cocoanut powder added together with a little milk. The mass is stirred until a dough is formed. This is cut into thin cakes and baked. (*Medical Chronicle*, No. 2, p. 113, 1894.)

Treatment of Pruritus Vulvæ.—In an article in *La Presse Médicale* the following treatment is recommended for pruritus vulvæ:—(1) If diabetic, try specific and dietetic treatment, with daily warm lotions. (2) If connected with chronic eczema of the genitals, a gonorrhœal vaginitis, a chronic vaginitis with leucorrhœal discharge, or vaginismus (with hysterical symptoms), suppress all existing diets. If there is abundant discharge, inject night and morning three to four pints of warm permanganate of potassium solution (1—1,000). Use three times daily a lotion of one part of perchloride of mercury, fifty parts of alcohol, and 450 parts of water. Abstain from the application of all pomades and ointments, which by their fermentation increase the irritation. (*Medical Chronicle*, p. 199, June 1884.)

Somnambulism.—Dr. Michell Clarke, writing on somnambulism, says that in sound sleep all the functions of the brain and spinal cord are in abeyance, except those connected with the maintenance of life. The order in which the various functions are lost is: (1) loss of the higher mental faculties; (2) loss of the motor functions and relaxation of muscles; and (3) loss of common sensation and of the special senses. They are awakened in the reverse order. When sleep is disturbed by dreams, the course of events is as follows: The dream may be caused by some stimulus extrinsic to the brain, or may arise in processes of ideation started in the brain itself. If, without awaking the dreamer, the motor centres are put in action by the illusion of the dream, the condition of somnambulism is arrived at. Somnambulistic actions are of all grades. The sleep-walker's energies are entirely absorbed and dominated by a vivid illusion, under the influence of which his actions are concentrated, to the exclusion of all other objects. In most

somnambulists the visual and tactile senses at any rate seem to be preternaturally acute ; but all the senses are directed only to one aim, and are acute only when used to this end. The concentration of the mind is so complete as to inhibit the feelings of timidity which, under ordinary conditions, would arise and paralyse his will-power. He may not only feel no fear, but also fail to recognise that certain actions are impossible, and come to grief. The same person in the somnambulistic state almost invariably performs the same actions. As to the functions of the nervous system in the somnambulist, the eyes may be open or closed ; hearing may be absent or present ; touch is generally acute, but may be absent. There is no doubt of the activity of the intellectual processes in somnambulism. The only constant and essential sign is the forgetfulness of all that has passed during the period of somnambulism, however complicated the actions may have been. There is good evidence that in a return of the somnambulistic condition the memory of the events that took place during previous attacks is most often preserved, although completely lost in the waking state. This is analogous to the condition in recurrent dreams. Dr. Michell Clarke writes of cases of double consciousness ; and says there are allied states, perhaps most often connected with epilepsy, which still more nearly approach the condition of spontaneous somnambulism. He also touches on induced somnambulism (hypnotism), and discusses briefly the physiology of these allied states. (*Bristol Med. Chir. Journ.* vol. xii. No. 44, p. 81, 1894.)

Permanganates in Diphtheria.—Dr. Catrin has tried permanganate of potassium in the treatment of diphtheria. He pencilled and washed the affected parts every two, three, or four hours with a half per cent. solution of the salt. Under the influence of this treatment the membranes always rapidly disappeared. This treatment is also very efficacious in simple sore throat. (*Medical Week*, vol. ii. No. 31, p. 370, 1894.)

The Antitoxic Functions of the Liver.—Lagari refers to many of the old theories concerning the antiseptic functions possessed by the liver, and briefly describes some of the experiments which have hitherto been carried out regarding the subject, namely : (1) the introduction into the branches of the vena portæ of a certain quantity of poison, the same being injected into a peripheral vein of another animal ; (2) a test as to the comparative degrees of toxicity in the blood flowing to and from the liver respectively ; (3) the hypodermic injection of a poison in the case of an animal from which the liver has been removed ; (4) the mixture of finely divided

liver substance with a poison ; and (5) the gradual obliteration of the vena portæ by means of pressure, or its introduction into the vena cava. The author then gives the hitherto accepted, though in some cases conflicting, results, and describes a number of investigations made by himself on more modern lines. He first allowed a solution of curare and diphtherial poison to circulate through the liver. Both poisons in a slight degree lost their strength. Curare was next allowed to be absorbed by the gastro-intestinal tract, and the bile and blood flowing from the liver were tested. In this case the result was similar. Rabbits deprived of the liver did not appear to be less able to resist the action of poisons introduced into the stomach. Finally, the liver substance appeared to possess no antiseptic power. Hence the author holds that though the liver possesses neutralising properties as regards certain poisons, that this power is probably similar to that existing in other tissues ; and that any such power must resemble rather one of elimination than one of transformation. (*Giornale Internazionale delle Scienze Mediche*, vol. vii. p. 252, 1894.)

Prophylaxis of Influenza.—Before the Academy of Medicine, M. Roussy stated that he was so susceptible to influenza, that he was taken with it if he respired the same air as that of an influenza patient. He avoided an attack by taking small doses of quinine and creasote before exposure to contagion. (*Progrès Médical*, vol. xx. No. 28, p. 23, 1894.)

Adherent Pericardium in the Child.—Dr. Theodore Fisher, of Bristol, brings forward the following important facts in connexion with adherent pericardium in children, namely : (1) that adherent pericardium is the most common cause of enlarged heart in children ; and (2) that this sequence of pericarditis is much more serious in its nature than valvular disease, and that children in whom it is present will probably never reach adult life. These facts are not new ; but although known to those who have had experience of children, they do not appear to have received general recognition. Dr. Sansom says : " Pericarditis in childhood may pass away leaving no trace, but more frequently it is accompanied by persisting endocardial changes, and is followed by adhesions between the visceral and parietal layers of the pericardium with much thickening—a condition which, however it may be in the adult, disposes the child to very considerable hypertrophy of the heart." He also says : " In children adhesions of the pericardium constitute one of the most important conditions that militate against recovery. A valvular lesion may be perfectly compensated, but pericardial adhesions are adverse, and often lead to rapid death." Here we have adherent pericardium referred to both as a cause of

hypertrophy of the heart and of rapid death. Not only is adherent pericardium a serious form of heart disease in children, but it appears to be more common than ordinary valvular disease. Adherent pericardium is the form of chronic heart disease most to be feared in children, while in adults valvular disease is undoubtedly of far greater consequence. The importance of diagnosis of this condition is at once obvious. This is a somewhat difficult question. If aware of a previous attack of pericarditis in a child suffering from an enlarged heart, we should probably diagnose adherent pericardium on the grounds of probability, but in the absence of such a history we are driven to rely upon physical signs alone. Here a text-book list arises before us: retraction of the apex-beat, retraction of the lower end of the sternum, diastolic rebound, pulsation of the veins of the neck, the *pulsus paradoxus*, and so on. It may be said, perhaps with small fear of contradiction, that all these signs are of little value. To take the first, the retraction of the apex-beat, for example; it is generally considered not to occur unless there are adhesions between the pericardium, the pleura, and the chest-wall as well as between the two surfaces of the pericardium. Another physical sign upon which some writers lay considerable stress is, that the situation of the apex-beat does not alter with the position of the patient. The impulse of a healthy heart shifts $\frac{1}{2}$ in. to $\frac{3}{4}$ in. or more when the patient turns from lying on the back to the left side; but when adherent pericardium is present, it is said to remain stationary. It is obvious, however, that adhesion must also be present between the pericardium and the chest-wall; and since these are generally absent, this sign can be of no great value. Dr. Fisher particularly refers to an auscultatory sign: a sound heard during diastole, which may constitute part of a typical *bruit de galop*, or be a rumbling sound that might easily be mistaken for a pre-systolic *bruit*. In cases of adherent pericardium with dilated heart, whether there is disease of the mitral valves or not, we shall almost certainly have a systolic apex *bruit* due to regurgitation. In addition to this systolic *bruit*, we shall also probably hear another abnormal sound interpolated between the first and second sounds. This may be merely like a soft first or second sound, or it may be of rumbling character, diastolic or presystolic in time, and thus be thought to indicate mitral stenosis. Whatever the explanation may be of the serious results of pericarditis in children, the fact remains that those results are serious, and far more serious than has been generally recognised, since valvular disease still occupies the foremost place in works upon diseases of children, adherent pericardium being often disposed of in one or two sentences. (*Bristol Med.-Chirurg. Journ.* vol. xii. p. 93, 1894.)

A New Treatment for Syphilis.—Jullien considers that a more energetic treatment of syphilis should be resorted to from the first; and with this object he has during the last few years carried out the following procedure with the best results. In the case of a strong vigorous man $1\frac{1}{2}$ grains of calomel are injected subcutaneously with 1 cubic centimetre of petrolene into the shoulder or buttock, and as near to the lesion as is convenient. For months the operation is repeated every second week; afterwards at intervals of twenty, twenty-five, or thirty days. Hereafter milder doses can be employed, and the treatment discontinued unless fresh symptoms appear. The dose and frequency of administration should vary according to the age of the patient, and should also be subject to the condition of the gums and kidneys, which require watching. The author was thoroughly satisfied with the results obtained, and a description of some cases is given. (*Progrès Médical*, vol. i. p. 377, 1894.)

Thyroid Feeding.—Professor Ewald, in a paper on the treatment of myxœdema, read before the Medical Society of Berlin, calls attention to the appearance of glycosuria as a result of the administration of tablets of thyroid gland, and also to the fact that the active principle of the thyroid does not lose its power under the influence of either the gastric juice or of heat, showing that it is not a ferment, properly so called. (*Medical Week*, vol. ii. No. 20, p. 357, 1894.)

Cutaneous Gangrene in Hysteria —M. Féré relates a case of considerable interest of cutaneous gangrene in a hysterical subject. The patient was under treatment for round ulcer of the stomach, and the author of the paper advanced the suggestion that the two lesions may be due to the same kind of nervous disorder. (*Progrès Médical*, vol. i. No. 22, p. 391, 1894.)

Notes and Queries.

POCKET COCAINE SPRAY.—We have received from Messrs. Burroughs, Wellcome, and Co. a very convenient and ingenious pocket cocaine spray for the nose, which has been designed with a view to obviate the toxic effects produced by cocaine solutions when used indiscriminately. The patient can by means of this apparatus control the quantity with great accuracy. The solution for use is prepared from tabloids, so that the dose as prescribed cannot be exceeded unless deliberately and at the patient's own risk. The apparatus is inexpensive, can easily be carried in the pocket, and is very suitable for nasal affections.

ALUMINIUM HYPODERMIC CASE.—The improved processes whereby aluminium is readily and cheaply manufactured have led to its rapid introduction into the arts. Its lightness and strength, together with its very slight tendency to oxidize, make it very suitable for certain medical and surgical instruments. Messrs. Parke, Davis, and Co., of Detroit and London, have employed the metal to good purpose in constructing a light, compact, cleanly, and very portable hypodermic case, which is deserving of commendation. It contains an improved syringe embodying several advantages over those hitherto in use. The plunger can be adjusted so as to fit tightly even when the packing has become dry through disuse. The needles are specially strengthened by a sheath embracing the upper half, and can be easily and effectively cleaned; and the several parts are made so as to be immediately replaceable should any become broken or lost. The case is supplied with half a dozen tubes containing hypodermic tablets of the drugs in most frequent use. These are so made up as to be immediately soluble without trituration. This feature enables them to be used with great facility for extemporaneous injections.

Prescriptions.

A RHUBARB DRAUGHT.

R Pulveris Rhei gr. xxx.
Sodii Bicarbonatis gr. xx.
Spiritus Myristicæ ℥ xx.
Syrupi Zingiberis ʒj.
Aquæ Floris Aurantii ad ʒiss.
Misce et fiat haustus.

To be taken at bedtime.

FOR INTERTRIGO IN CHILDREN.

R Liquoris Plumbi Subacetatis ʒiv.
Acidi Borici gr. xx.
Extracti Hamamelidis Destillati ʒij.
Lactis Recentis ad ʒx.
Misce et fiat applicatio.

To be applied on a pad of absorbent cotton-wool to the affected parts.

AN ALKALINE CHALYBEATE TONIC.

R Ammonii Carbonatis gr. iij.
Ferri Tartarati gr. v.
Syrupi Zingiberis ʒj.
Infusi Cascarillæ ad ʒj.
Misce et fiat mistura.

Two tablespoonfuls to be taken three times daily after meals.

AN ANTISPASMODIC AND CARMINATIVE DRAUGHT.

R Spiritus Ammoniaë Foetidi ℥xxx.
Spiritus Ammoniaë Aromatici ℥xxx.
Syrupi Floris Aurantii ʒj.
Aquæ Camphoræ ad ʒj.
Misce et fiat haustus.

To be given three or four times daily, as required.

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Department of Public Health.

CHOLERA IN EUROPE IN 1892 AND ENGLISH CHOLERA ADMINISTRATION.

BY R. THORNE THORNE, C.B., M.B., F.R.S.

*Being an Extract from the Report of the Medical Officer of the Local Government
Board for 1892-93.*

(Continued from page 311.)

English Cholera Administration.—Throughout the spring and summer careful note had been kept in the Medical Department of the movements of Asiatic cholera, first in the direction of and across the eastern frontier of Europe into Russia, and then from one Russian province to another in the direction of the Baltic, and of the German and Hungarian frontiers. And, when the disease was evidently about to invade those provinces of Russia which are within the Pale of Settlement for the Jews, and from which emigration of Russian Jews across Germany and thence to this country was at the time in rapid and continuous progress, it became necessary at once to warn the authorities of those English ports at which these immigrants and trans-migrants were landing. On the 25th of July a rapid medical survey of our ports was commenced, and it was carried on throughout the whole of August, September, and October. The more important of our eastern ports were first visited; the next ports to come within the survey being some on our southern coast.

But in the meantime cholera had reached the Port of Hamburg, the disease having broken out there somewhat after the middle of August. The first intimation of the infection of this port reached the Board on August 23, and the circumstance

was at once communicated by telegraph to those of our ports which were known to have traffic with the Hanseatic city. The port survey, already in progress, was maintained and extended: a large number of ports were visited at various points along our coast line, the port authorities being urged, where necessary, to increase their means for the inspection of vessels "coming foreign," and to make such arrangements as would enable them to deal with any case of cholera or of choleraic diarrhoea that might be found on board ship. The survey also took account of a considerable number of riparian sanitary districts, other than port districts, the shipping trade of which rendered the adoption of special precautionary measures necessary. In all more than 100 districts, including all port sanitary districts, were thus visited for the purposes of inspection and conference with the authorities concerned. A list of these districts is appended [appendix not reproduced], together with a number of particulars, including the then existing arrangements for dealing with imported cholera; the advice given by the inspector on behalf of the Board; and, as far as practicable, the action taken at the time on that advice. In this way English port and riparian authorities were placed on the alert; and although thirty-five cases of cholera reached our shores between August 25 and October 18 the disease, as already stated, in no case extended to any person beyond those who had arrived from abroad. Of these thirty-five cases, eleven terminated fatally. The vessels by which these cases were imported were twenty in number; they sailed from four different ports, fourteen of them coming from Hamburg, and they introduced cholera into nine English ports. In three instances, cholera succeeded in passing beyond the limits of our port districts, the disease not manifesting itself until the persons incubating it had made their way inland. These instances included one passenger who, arriving at Harwich on August 24, sickened in London on August 27; four attacks in emigrants who, after landing at Hull on August 26, sickened in Liverpool on August 28; and two persons who, having landed at Harwich on August 29, fell ill in London on August 30. All these seven patients were at once isolated in hospital; three of them died and four recovered.

Proposals as to Quarantine.—In the meantime cholera had extended to ports abutting on the western shores of the North Sea and the British Channel. And under these circumstances, the Board were urged by a number of different sanitary authorities and other bodies to take steps which would have involved grave departure from the traditional attitude of England in the face of cholera; an attitude which has been one of the main forces in securing for this country that sanitary administration and those habitual sanitary practices which have won for her the esteem and envy of other nations, and which have been at the root of the greatest saving of life from preventable diseases that has ever been recorded in the history of the world.

The demands had to do with the imposition of quarantine in one or another form. Some authorities couched their requests in terms of a somewhat indefinite character; but others asked definitely to be invested with powers to place in quarantine all vessels arriving from infected ports, and in one instance a period of from four to seven days was suggested for this purpose. And sanitary authorities were not alone in pressing such demands. Thus, almost at the same time when one large association of shipowners were making official complaint as to the enormous cost entailed through the enforcement of quarantine in foreign ports—as also at Gibraltar and Malta—against British shipping, other shipping firms were urging that arrivals either from infected ports or from certain specified continental ports should “be quarantined” at all British ports.

These demands were met by a definite refusal on the part of the Board, but the mere fact that such demands were made calls for serious notice, and this the more because the circumstances under which they were formulated, and which may occur again, gave them for the moment some appearance of reasonableness in the eyes of certain people.

The system of cholera prevention which has been in operation in England for some forty years, and the details of which have for the past twenty years been largely embodied in the Cholera Regulations issued by the Board, have the following objects in view:

Port and riparian sanitary authorities have imposed on them the duty of so dealing with ships, either infected with cholera

or arriving from places infected with cholera, that the sick shall be placed in hospital; that those suspected of cholera shall be detained for a limited period, so that the nature of their illness may be ascertained; that certain sanitary measures, such as the efficient disinfection of vessels, shall be carried out; and that, prior to the landing of healthy persons, their addresses at the places of destination to which they are travelling shall be obtained.

Should cholera succeed in passing this outer line of defence, the Board trust for the prevention of its spread to the general sanitary administration of the country. Sanitary districts, to which the hitherto healthy passengers are travelling, have communicated to them the addresses of these persons; the system of compulsory notification of infectious diseases (very generally in operation) supplies to each local authority immediate means of ascertaining whether any cholera has developed in their district; and, cholera having been discovered within their jurisdiction, inland sanitary authorities have a corresponding duty to that devolving on port authorities. That duty can only be properly performed by having at hand means for immediate isolation of the sick and disinfection of their belongings, and by the maintenance of such a standard of wholesomeness as will enable the authority so to deal with any case of cholera that may reach their district, as to prevent the spread of the disease.

It is not for one moment contended that the system referred to can, with certainty, prevent the importation of any case of cholera into England; indeed, our experience in 1892 shows the contrary. Neither can it be assumed that such a stage has been reached as to free the country from those conditions which are known to favour the spread of imported cholera. But the mere fact of abandoning State quarantine restrictions against cholera, and of devolving on English sanitary authorities—port, riparian, and inland—the duty of taking, in their respective districts, the necessary measures of cholera prevention has had an effect the importance and value of which forms a leading chapter in the past sanitary history of England. On the other hand, we have so often seen that when Governments, in their attempt to cope with the risk of imported infection, have drawn

lines around their countries—call them quarantine or by any other name—and have said as regards cholera, “Thus far, but no further,” a false confidence has been engendered, apathy has taken the place of efficient sanitary administration, and the consequence has been that vigour in quarantine restrictions has nearly always corresponded with laxity in public health administration, and with a high rate of mortality from preventable diseases, often including cholera itself.

It was in 1865 that Sir John Simon definitely set out the attitude which alone was practicable for this country in regard to foreign infection, and that system has since then been in more or less continuous working. During the period in question the general death-rate has gone down from over 23 to a mean of between 19 and 20 per 1,000 living, and a standard of sanitary administration has been attained which, apart from this system, could hardly have been realised. Indeed, the prospect of cholera which, for quarantining countries, has so often served to bring about the substitution of mere measures of restriction for measures of sanitation has in this country been always and intimately associated with progress in the department of public health and of preventive medicine. The result, as regards cholera, is shown in the following table :

CHOLERA MORTALITY.

Date.	England and Wales.		London.	
	Total Cholera Deaths.	Cholera Deaths per Million living.	Total Cholera Deaths.	Cholera Deaths per Million living.
1849	53,293	3,034	14,137	6,182
1854	20,097	1,094	10,738	4,288
1866	14,378	685	5,596	1,842

But, owing to the close inter-relations of cholera and enteric fever in so far as measures of prevention are concerned, we have, in the mortality returns of continued fever in England and Wales, another test of the value of the attitude which has been adopted in this country; and this test has the advantage of indicating with regard to one disease at least what has been

our gain quite apart from cholera itself. Since 1869 differentiation has been made in the returns of the Registrar-General between typhus, enteric fever, and "simple and ill-defined fever," the latter term being one the use of which has been rapidly diminishing;¹ and if enteric fever be grouped with simple and ill-defined fever, we find that whereas the mean annual death-rate per million living from those two diseases was 567 in the five years 1869-73, it was only 179 in the five years 1888-92. If during this latter quinquennium people had died from these fevers at the rate at which they died in the former five-year period there would have been during 1888-92 no fewer than 55,808 more deaths from "fever" than actually occurred. And, had the same mortality from enteric and ill-defined fever obtained during 1892 which prevailed in 1869, no less than 14,232 persons who at the end of 1892 had escaped death from such fever would have died during that year. In short, if cholera had recurred in England and Wales between 1867 and 1892—a period during which that disease was practically absent from our midst—on the same scale as between 1849 and 1866, we should still be the gainers by several hundreds of thousands of lives. And our gain in this respect is largely due to the incentive given by reason of cholera prospects, and of the knowledge that the disease would have to be met by improved sanitary administration.

But, quite apart from these statistical considerations, it is evident that those bodies who urged a return to quarantine restrictions had failed adequately to apprehend the import of their demands. And it may be well to enquire what would have been the result had it been deemed permissible to comply with certain of these requests.

"Put all ships from infected ports into quarantine," was one demand. Let us apply this to a few only of our ports. Between the end of September 1892 and January 1893 there occurred in Calais some seventy attacks of cholera, of which twenty-four terminated fatally. The port of Calais was thus

¹ In 1869 the number of deaths in England and Wales attributed to "simple and ill-defined fever" was 5,310; in 1892 it was 244. Whilst much of this diminution must be regarded as due to a transference of deaths from the undefined to the enteric fever group, yet it is by no means assumed that the whole diminution can be thus accounted for.

an infected port. Between September 24 and December 31, 1892, cholera was prevalent in Boulogne, causing thirty deaths. The port of Boulogne was thus an infected port. Now in the six weeks ending November 12, 1892, the mean weekly number of passengers arriving at Dover from the port of Calais was 1,800, and if a quarantine of five days had been imposed on arrivals from this infected port, the total number of persons who would have had to be detained, housed, fed, and otherwise cared for, either afloat or on shore, by the Dover sanitary authority, would, apart from the crews of the vessels, have amounted to 10,804: the number under detention at any one time ranging from 1,019 to 1,723. Dealing with Folkestone in the same way, it appears that during the six weeks ending November 12, 1892, the total number of passengers arriving there from the infected port of Boulogne was 3,251; that the mean weekly number of arrivals was 543;¹ and that the number of persons who at any one time would have had to be detained at Folkestone under a five days' quarantine system would have ranged from 272 to 623.² And, owing to cholera at other ports, such as Dieppe and Havre, similar measures would have had to be carried out at other English ports, notably at Newhaven and Southampton. Apart, indeed, from an almost complete cessation of traffic between the ports concerned, such as might have been brought about by any real attempt at quarantine restrictions, the result attained would have been one which could only have brought ridicule on our sanitary administration.

Some, it is true, allege that arrivals from ports such as those referred to would necessarily have to be exempted from any general rule as to quarantine, for the reason that the sea voyage in question constitutes so small a part of that which should properly be regarded as an almost uninterrupted railway journey between the capitals of the countries concerned. I

¹ These figures take no account of excursion traffic between the ports in question.

² For the statistics as to the amount of passenger traffic reaching Dover and Folkestone I am indebted to Mr. William Forbes, of the London, Chatham, and Dover Railway Company, and Sir Myles Fenton, of the South-Eastern Railway Company. The actual number of passengers was less than usual, owing to the prevalence of cholera on the continent of Europe.

entirely agree : the system would break down on its first application unless exemptions were brought in. But the moment exemptions are introduced it would be almost impossible to say where they are to stop ; and it is certain that they at once introduce, deliberately and in wholesale form, that very element of "leakiness" which, as Sir John Simon has shown, condemns the quarantine system itself.

But some authorities, having regard mainly to the magnitude of the epidemic in Hamburg, limited their demands for quarantine to arrivals from that port. As to this, I would observe, in the first place, it soon became evident that there was little or no need to place quarantine restrictions on Hamburg, for, with the diffusion of the cholera in that city, its shipping trade came almost to a standstill. And further, travellers from Hamburg to this and other countries, fearing lest they might be subjected to certain inconvenient restrictions, made other ports than Hamburg their immediate point of departure. Thus, those who journeyed to England took ship at Dutch, Belgian, and even French ports ; and it became obvious that irksome restrictions placed on arrivals from any one of the ports concerned, whether German, French, or other, would at once have led to a diversion of the traffic, and that any approach to successful quarantine against even a single port could only have been carried out at the cost of a general system of quarantine against all the principal ports on the western littoral of the continent of Europe. And further, any such action would necessarily have involved goods as well as passengers. Indeed some who urged these demands on the Board did not fail to extend their application to many classes of goods and merchandise, and notably to food supplies.

In brief, return to quarantine restrictions on the part of this country could, even at this date, hardly fail to have a most injurious effect in retarding sanitary progress ; and the effort to make the system in any way effectual would lead to the application of restrictions on people and on commerce that would be altogether intolerable. And after all, a really rigid quarantine, as applied to this country, must needs fail in important measure to effect the objects which its promoters would have in view. Writing in his annual report for 1865, Sir John Simon

concluded thus :—" So, for England, under present circumstances, quarantine against cholera, as existing in countries which are nearest to us, is a precaution of which there can be no serious thought. Were the country ever so ready to endure those extreme restrictions without which the whole thing is fruitless and absurd, the means for imposing them do not exist." These and other weighty words which Sir John Simon set out, in then dealing with this subject, evidently need to be recalled. They are reproduced in an Appendix [not annexed]; and it may be said that, if possible, they are even more applicable to the present circumstances of England than they were to those which obtained when they were written some thirty years ago.

REPORT ON THE SANITARY CONDITION OF METROPOLITAN BAKEHOUSES,¹

BY SHIRLEY F. MURPHY,

Medical Officer of Health to the Administrative County of London.

IN the development of legislation with regard to factories and workshops, the bakehouse has been usually regarded as a thing apart, and dealt with on special lines.

An enquiry into the condition of bakehouses and into the manner in which the bread-making industry was conducted, instituted by the Home Office in 1862, resulted in the passing in the following year of the Bakehouse Regulation Act of 1863. This Act dealt with two matters, the sanitary condition of the bakehouse and the regulation of the employment therein of persons under 18 years of age. The duty of enforcing both classes of provision was vested in the local sanitary authorities.

The bakehouse was thus cut adrift from the legislation dealing with factories and workshops, and on the passing of further Acts in 1864, 1867, and 1871 amending this legislation it still remained excluded from the scope of the general law.

¹ Being a report presented to the Public Health and Housing Committee of the London County Council.

The Royal Commission appointed in 1875 to enquire into the working of the Factory and Workshop Acts reported that it was "only here and there that any active steps had been taken by the local authorities to carry out the provisions of the Bakehouse Act." The Commissioners go on to state, "we by no means recommend that the local authorities should be relieved of their general duties in respect of the sanitary supervision of bakehouses, which, on the contrary, we trust will in future be more effectually administered."

On the passing of the Factory and Workshop Act of 1878, however, the Bakehouse Regulation Act was repealed, and the duty of regulating the sanitary condition of bakehouses was transferred from the local authority to the inspectors of factories.

It soon became apparent that whatever the defects of the old system might have been, the new one was unworkable. It was a physical impossibility that the limited staff of Home Office inspectors should be able to deal in an adequate manner with the large number of retail bakehouses existing throughout the country. It was, of course, still more impossible for that staff to institute any thorough inspection of workshops.

In the case of the bakehouse a fresh departure was made by the passing of the Factory and Workshops Act of 1883. This Act extended the power of regulating the sanitary condition of bakehouses, and provided that "the medical officer of health of the local authority shall have and exercise all such powers of entry, inspection, taking legal proceedings and otherwise, as a factory inspector under the Factory and Workshop Act, 1878."

The *medical officer of health* of the local authority thus became directly responsible for the sanitary condition of bakehouses in 1883. Section 26 of the Public Health (London) Act, 1891, however, repeals this enactment, and makes it the duty of the *sanitary authority* to enforce the provisions of the Factory and Workshop Acts of 1878 and 1883. The Factory and Workshop Act of 1891 makes the local authority responsible for the sanitary condition of workshops generally. It thus appears that bakehouses have for ten years derived the advantage of being under local supervision which is now being extended in larger degree to ordinary workshops. It is only to

be anticipated that, as far as the provisions of the existing law are concerned, the bakehouse should be at the present time in a more satisfactory condition than the ordinary workshop.

A reference to the annual reports of London medical officers of health for the years 1890 and 1891 bears out this anticipation. In the case of thirty-five districts special mention is made of bakehouses, the usual comments being that they have been systematically inspected and found to be in a fairly satisfactory condition. In one instance, that of Fulham, the medical officer of health expresses great dissatisfaction, and intimates that a number of instances of non-compliance with existing requirements were discovered. The necessary steps to enforce the provisions of the law were taken. The medical officer of health of St. George's, Hanover-square, states it to be his opinion that legislation is necessary to compel the closing of all bakehouses that are situated in underground rooms. In the case of five districts no mention is made of bakehouses in the annual reports for 1890 and 1891.

The medical officer of health of St. George-the-Martyr, Southwark, presented to his authority in April of last year a special report on bakehouses in his district, in which he called attention to the undesirability of underground rooms being used as bakehouses. He said "efficient ventilation is impossible in these cellars," and he alluded to certain underground bakehouses in his district in which flooding had occurred during times of heavy rain. He concluded that a clause should be inserted in the Factory and Workshop Act forbidding the use in the future after a certain fixed date of all underground bakehouses not previously in use as such. He moreover advocated the compulsory registration and annual licensing of all bakehouses. The medical officer of health of St. Marylebone also called attention to the subject of bakehouses in the course of last year, and caused a special inspection of the bakehouses in his district to be made.

On referring to the annual reports of medical officers of health for 1892, specific mention of bakehouses will be found in most instances. In the majority of cases the statement is made that the bakehouses have been regularly inspected, and in many of the reports a list of the bakehouses in the district is

given. The medical officer of health of St. George's, Hanover-square, again states it to be his opinion that legislation is necessary to compel the closing of all bakehouses that are situated in underground rooms. The medical officer of health of St. Pancras alludes to the extreme difficulty of cleansing and ventilating underground bakehouses. The medical officer of health of Holborn discusses the question of watercloset accommodation for workers in bakehouses. The reports of the medical officers of health of Shoreditch and Bethnal Green are highly condemnatory. In the former it is stated that only 30 bakehouses out of a total of 104 are satisfactory, while in the latter only 7 were found satisfactory out of a total of 102. The medical officer of Bethnal Green writes:—"I am afraid the bakehouses are not sufficiently well looked after. They require frequent inspection, and should be visited at least four or five times a year, but your present staff of inspectors are too fully occupied to devote sufficient time to them, and I think that the appointment of a workshop inspector as recommended by the Sanitary Committee should be at once proceeded with."

Before detailing the results of an inspection of bakehouses in London, which has recently been made by Dr. Hamer and Dr. Young on behalf of the Council, it may be well to briefly indicate the nature of the requirements of the existing law with respect to the sanitary condition of bakehouses.

The statutory enactment regulating the sanitary condition of retail bakehouses in London, that is to say, of places "in which are baked bread, biscuits, or confectionery, from the baking or selling of which a profit is derived," may be considered under two headings, viz. :—

(a) Enactments peculiar to bakehouses.

(b) Enactments applicable to bakehouses in common with other workshops.

These are to be found in the Factory and Workshop Acts of 1878 and 1883, and in the Public Health (London) Act, 1891.

(a) *Enactments peculiar to bakehouses.*

The Factory and Workshop Act, 1878. Section 34 provides that the inside walls of every bakehouse shall either be painted or varnished, or be limewashed. If paint or varnish be used, it must be renewed every seven years, and be cleansed every six

months; limewashing must be renewed every six months. Section 35 prohibits the use as a sleeping place of any place on the same level as the bakehouse, and forming part of the same building, unless it be effectually separated from the bakehouse, and has adequate external ventilation.

The Factory and Workshop Act, 1883. The provisions contained in Section 15 of this Act apply only to bakehouses newly occupied after June 1st, 1883. Section 15 provides that—(i.) No water-closet shall be within, or communicate directly with, the bakehouse. (ii.) The cistern supplying water to the bakehouse shall be distinct from the cistern supplying a water-closet. (iii.) No drain or pipe carrying off fæcal or sewage matter shall have an opening within the bakehouse. Section 16 authorises a court of summary jurisdiction to impose a fine not exceeding forty shillings if satisfied that any room or place used as a bakehouse (whether the same was or was not so used before the passing of this Act) is in such a state as to be on sanitary grounds unfit for use.

The Public Health (London) Act, 1891, Section 26, enacts that the above sections in the Factory and Workshop Acts shall be enforced by the sanitary authority of the district in which the bakehouse is situate.

(b) *Enactments applicable to bakehouses in common with other workshops.*

A bakehouse being a workshop is subject to the provisions of the Public Health (London) Act, 1891, relating to such premises. Section 2 (9) provides that any workshop—(i.) Not kept in a cleanly state and free from effluvia arising from any drain, privy, earth-closet, water-closet, urinal or other nuisance—(ii.) Not properly ventilated—(iii.) So overcrowded during worktime as to be injurious or dangerous to the workers—shall be a nuisance liable to be dealt with summarily under the Act. Section 38 requires that every workshop shall be provided with sufficient and suitable accommodation in the way of sanitary conveniences.

In order to ascertain the conditions existing in London bakehouses, inspection has been made by Dr. Hamer and Dr. Young of these premises in several sanitary districts. Altogether 200 bakehouses have been visited, some being situated in the central

and more crowded, others in the outer districts; the results obtained therefore may be taken as fairly representing the state of things to be found in London bakehouses generally.

They found that in 118 instances the bakehouses were situated below the ground level, or partially so, many being practically the cellars underneath the baker's shop. In several cases the lighting and ventilation of these were quite inadequate, and this remark especially applies to the lighting of the bakehouses by natural means. It may be said in reference to this matter that since a great part of the work of bread-making is carried on late at night and during the early hours of the morning, when artificial light is necessary under any circumstances, the question of natural lighting loses much of its significance; it must be borne in mind, however, that at many bakehouses confectionery is also made, and work goes on during the daytime as well as at night, and that at bakeries where bread only is baked the hours of work range from 11 p.m. to 12 noon or 1 p.m. The necessity of ample natural light for the purpose of maintenance of cleanliness is of course obvious.

As regards ventilation, it was found during the inspection that in 28 bakehouses the provision for this purpose was quite insufficient, and with four exceptions these were all underground bakehouses. In 63 instances the ventilation was good, this number including 22 bakehouses situated underground or partially so. In the remaining 109 premises the means of ventilation were considered fairly adequate.

Everything, of course, depends upon the standard adopted, but the terms used serve for the purpose of comparing underground bakehouses with those situated on the ground level, so far as the question of ventilation is concerned. This comparison may be stated thus—

Means of ventilation.	Out of 118 bakehouses below the ground level.	Out of 82 bakehouses on ground level.
Good	18 per cent.	50 per cent.
Fair	61 "	45 "
Bad	20 "	5 "

There is no doubt that it is more difficult adequately to

ventilate a room situated partially or entirely below the level of the surrounding ground than one situated on the ground level, and especially so when the room used is really the cellar underneath the shop. Although the high temperature of a bakehouse during the time that baking is going on is conducive to great interchange of air, any advantage which might be derived in this way is lost, as, owing to the very general opinion found to exist among bakers that all draughts must be guarded against during the time that fermentation is in progress lest the whole batch of bread be spoilt, windows and other openings into the external air are kept closed during work. Indeed, in the case of many of these basement rooms, owing to their small size and low ceilings, adequate ventilation is practically impossible without creating a draught.

In a certain number of cases the temperatures of the bakehouses were observed. These ranged from 65° Fah., in a bakehouse where work had ceased some two or three hours previously, to 102° Fah. in one case where a batch of bread was being drawn at the time of visit. The latter temperature occurred in a small and badly-ventilated underground bakehouse, and appears to be exceptional; in the majority of cases the range of temperature was between 72° and 88° Fah.

No evidence was obtained during the inspection that overcrowding takes place in bakeries.

The condition in which the bakehouses were found, as regards the general state of repair and cleanliness, is evidence that the supervision of the sanitary authorities is, generally speaking, attended with good results. In twenty-nine cases out of the total number visited the premises were in a dirty condition, this being due in some cases to a disregard of cleanliness in the conduct of the business, and was most marked in bakehouses where confectionery was also made; in others this condition was due to insufficient limewashing and cleansing of the walls and ceilings.

At some of the bakeries which were kept in a cleanly condition, small accumulations of dry flour, &c., were noticed under the troughs; these, however, were evidently not the collections of any long period, and in most cases it was stated

that this refuse was regularly removed twice or three times a week; this habit of permitting accumulations is very undesirable, as it encourages vermin. In some instances the paving of the bakehouse was uneven or defective, or entirely absent underneath the flour trough.

Water-closets were found within or communicating directly with the bakehouses in four cases, and in six cases the position in relation to the bakehouse was objectionable. In two instances the water for the use of the bakehouse was obtained from the cistern supplying the water-closet.

Section 15 (iii.) of the Factory and Workshop Act, 1883, enacts that "no drain or pipe for carrying off fæcal or sewage matter shall have an opening within a bakehouse;" this requirement applies only to bakehouses occupied newly since June 1, 1883. During the inspection 37 bakeries were found to have an inlet which was not aerially disconnected from the drains, though with the exception of nine all were provided with proper traps.

In the underground bakehouses situated in the low-lying districts which were visited, attention was specially directed to the question of flooding of the bakehouse from the drains during times of storm. Information was obtained of this occurrence at five premises. At one of these flooding occurred a year ago, at another flooding occurred three times in five years, a third was flooded three years ago during a storm, a fourth was flooded some years ago, and is still liable to suffer during storm, but the occurrence is prevented by fixing a plug in the drain; at another bakehouse the trap in the yard outside, and on the same level as the bakehouse, was forced during a storm twelve months ago, and this had occurred four times in fifteen years.

It may be well now to consider the nature of the indirect evidence pointing to the conclusion that there is need of improvement in the sanitary condition of bakehouses. Such evidence would naturally be expected to be considered under two heads:—

- (a) The peculiarities of the occupation as affecting the health of the bakers.
- (b) The liability of the bread to contamination.

The subject of the vital statistics of bakers is not one upon which it is possible with our present knowledge to express any very decided opinions.

Dr. Arlidge, in his work entitled "*The Diseases of Occupations*," enumerates the unhealthy influences to which the baker is exposed as follows:—

"Exposure to heat from ovens, dust, steam, variations of temperature, in too many instances unhealthy bakehouses, fatiguing movements necessitated where kneading is done by hand, disagreeable emanations from materials used, prolonged hours of work, more or less night-work and loss of rest." He concludes that there are "many incidents in the occupation of baking which reduce vital energy, predispose to lung affections and shorten life," but comments upon the discrepancies noticeable in the vital statistics of bakers compiled by different authors, and suggests that this may be in part due to the disturbing effect produced on the results by change of occupation.

Dr. Ogle's figures with respect to comparative mortality in various occupations are given in the supplement to the 45th Annual Report of the Registrar-General. The calculations were made from deaths registered during 1880-1-2 (prior, that is to say, to the passing of the Bakehouse Regulation Act of 1883). The comparative mortality figure is given for each occupation, the mortality among all males being taken as 1,000 and reference made to it as a standard. One hundred different headings are dealt with in all, and in 37 of these the comparative mortality figure exceeds, while in 62 it falls short of, 1,000.

The comparative mortality figure of the baker and confectioner stands at 958, and it may be noted that while he compares unfavourably with the grocer and with the shopkeepers as a whole, he compares favourably with the cheesemonger, milk or butter man, the greengrocer and fruiterer, the fishmonger and poulterer, and the butcher.

Dr. Ogle has moreover attempted to ascertain what is the comparative mortality in the several industries from each separate disease or group of diseases, and with this intention has abstracted from the registers a considerable sample of the

causes of deaths in certain industries, and has divided out the total mortality in the industry ascribed to the several causes in the proportions existing in the sample.

In basing conclusions upon the results so obtained, it must not be forgotten that the total number of deaths dealt with varies in the different occupations. The number of deaths of bakers and confectioners so divided out is 629, and while this number is sufficiently large to base general conclusions upon, it is sufficiently small to render it inadvisable to attach great importance to small variations in the figures.

The following table is an abstract of Dr. Ogle's table (Table L, Comparative Mortality of Males, 25-65 years of age, in different industries; from all and several causes).

	Diseases of nervous system.		Suicide.		Diseases of circulatory system.		Phthisis.		Diseases of respiratory system.		Diseases of urinary system.		Liver diseases.		Other diseases of the digestive system.		Alcoholism.		Gout.		Plumbism.		Accident.		All other causes.		All causes. (Comp. mort. figure.)	
All males	119	14	120	220	182	41	39	38	10	3	1	67	146	1,000														
Baker and confectioner	136	26	131	212	186	40	46	26	15	5	12	2	21	117	958													
Grocer	107	17	107	167	116	48	52	31	10																			
Butcher	139	23	132	261	208	55	96	33	23																			

Dr. Ogle remarks with reference to bakers and confectioners, that the death rates "have not altered materially since the previous record; they are still rather high, though far short of those of butchers." Again he says, "There is some indication in the table of Mortality by Causes, Table L, of abuse of alcoholic drinks by bakers; for the mortality in this trade directly ascribed to alcohol is high, and that ascribed to suicide very high, while the mortality from liver disease is also somewhat above the average. In spite of the high temperature in which bakers work, and the inhalation of flour dust that their craft entails, their mortality from phthisis and from diseases of

the respiratory organs hardly departs from the average for all males."

Dr. Ogle again returns to the subject of phthisis among bakers in dealing with the "Influence of Dust" (page lix. of the report already quoted). He shows (Table O) that the baker's occupation, though contrasting favourably in respect of phthisis and diseases of the respiratory organs with the majority of dust-inhaling occupations, contrasts unfavourably with carpenters and coal miners. The excess of deaths of bakers from phthisis over those of carpenters is very small, but from diseases of the respiratory organs greater, and he observes that it may be doubted whether the higher mortality of bakers as compared with carpenters from diseases of the respiratory organs is due to the flour dust so much as to the heated atmosphere of the bakehouse.

Dr. Arlidge, in the work already referred to, disputes the accuracy of the assumption that flour dust is innocuous, and says there is ample evidence of flour entering the pulmonary tissue and setting up chest affections; he admits, however, that the exposure of bakers to flour dust "is neither considerable in extent nor long in duration."

I am indebted to Mr. S. N. Fox for the privilege of being permitted to see the advance sheets of an interesting article on the statistics of operative bakers, which he has contributed to the *Economic Journal*, and which will shortly appear.

Mr. Fox contends that two circumstances deserve to be taken into account in estimating the value of Dr. Ogle's statistics of the mortality of bakers, the one that confectioners are included with bakers, the other that master bakers are included with journeymen bakers; the former of these is important because the hours and conditions of work of confectioners are very different from those of bakers proper, the latter because the master bakers, except in East London, do not as a rule share in the labour of the journeymen, and are not therefore exposed to the same unhealthy conditions.

Mr. Fox has been able to use the records belonging to the Amalgamated Union of Operative Bakers and Confectioners. Of this union only five per cent. are confectioners, and only working bakers are admitted as benefit members. Mr. Fox extracted from these records the deaths which occurred among

the members of the society during the three years, July 1890 to July 1893, and found that of 131 deaths occurring between 25 and 65 years of age, phthisis caused 32, and bronchitis and pneumonia 48 deaths.

The number of members at this age is not shown, and the death rates from these causes cannot therefore be given, but Mr. Fox points out that the deaths from phthisis constituted 24 per cent., and those from bronchitis and pneumonia 36·6 per cent. of the total deaths.

In the decade 1881-90 these diseases caused respectively 26·9 per cent. and 15·3 per cent. of the deaths of London males at these ages, showing, so far as this method of dealing with the subject can show, an excessive tendency of bakers to die of pneumonia and bronchitis.

It seems then that such figures as are available raise some suspicion that the occupation of a baker is attended with certain dangers to health, but the statistics collected do not deal with a very large number of deaths.

With regard to contamination of bread, it may be at once said that there is at present no evidence pointing to the transmission of infectious disease by the consumption of this article of diet, such as exists in the case of water and milk. It is none the less desirable that in a bakehouse there should be scrupulous attention to cleanliness and wholesomeness of surroundings, and there is occasionally evidence of a lack of such attention in London bakehouses. Even in the best conducted and most cleanly places, kneading by hand necessarily implies a certain amount of organic pollution, and there can be no doubt that this source of contamination far outweighs in degree all others. Hand-kneading is, it is said, being fast replaced by machinery, and, as Dr. Arlidge observes, "the whole detail of bread and biscuit making are being rapidly metamorphosed by this agency to the sanitary gain of bakers, and to the advantage of cleanliness."

It now remains to consider whether the present law relating to bakehouses is adequate for insuring that the sanitary condition of these premises is satisfactory both as regards the health of the workers and the manufacture of bread.

The number of bakehouses situated either underground or

partially so indicates that this situation is found especially convenient by the trade, probably on account of the comparatively large amount of room required. The inspection has, however, shown that a proportion of these (20 per cent.), owing to inadequate ventilation, cannot be considered to be in a proper sanitary condition. In view of the fact that even 18 per cent. of the underground bakehouses were found to be well ventilated, it is obvious there can be no general prohibition on the score of ventilation of bakehouses thus situated. It may be urged, however, that inasmuch as it is a frequent custom to convert underground rooms into bakehouses, that this custom is largely responsible for the existence of ill-ventilated bakehouses, and that Section 16 of the Factory and Workshops Act of 1883 provides an insufficient power of control, more restriction should be placed on the use of premises which never can be made to meet the proper requirements of a bakehouse.

Any provision which would lead to the creation in a London district of bakehouses of greater excellence from a hygienic point of view would undoubtedly have the effect of raising the standard by which other bakehouse premises would be judged for the purposes of Section 16 of the Act of 1883, and the requirement of a higher standard than at present for new bakehouses would thus indirectly lead to the improvement of existing premises.

I think, therefore, the course which suggests itself at the present time is the provision of a power to require that all premises hereafter brought into use as bakehouses shall, before these premises are used, comply with regulations relating to the structure and position, the lighting and the ventilation, including air space, and the cleansing, drainage, and water supply of the premises.

It would no doubt be a distinct advantage if the sections of the Act of 1883, as to the exclusion from a bakehouse of any privy or ashpit, or any inlet connected with a drain or sewer, and the provision of a water supply from a cistern separate and distinct from the cistern which supplies the water-closet were applicable, not only to bakehouses newly occupied since 1883, but to all bakehouses. The provision that there shall be no inlet connected with a drain or sewer, if enforced, would prevent

the risk of flooding in underground bakehouses in low-lying districts, which now exists to a small extent. This question of flooding, however, is not of importance in respect to bakehouses only, but raises question as to the sufficiency of sewerage and as to the need of control of the levels of basements which are drained into sewers.

Apart from the alterations which might be effected in the condition of London bakehouses by the amendment of the present law on the lines indicated, other needed improvements in their condition are such as depend on their regular inspection, and the enforcement of existing provisions by the sanitary authorities.

THE PRACTITIONER.

DECEMBER 1894.

Original Communications.

ON TROPICAL DYSENTERY.

BY SURGEON-GENERAL SIR JOSEPH FAYRER, K.C.S.I., LL.D.,
M.D., F.R.S.,

Consulting Physician to Charing Cross Hospital.

(Continued from p. 334.)

DYSENTERY in the acute form having passed away, it may merge into diarrhœa; this, to some extent, may be due to the ipecacuanha. The diarrhœa, if it do not rapidly subside, may be controlled by chalk mixture, catechu, kino, hæmatoxylon, red eucalyptus, or bael; but it is *only* in this condition that astringents are of advantage. In the early and acute stages they are out of the question. Most cases of dysentery, in Bengal at least, are more or less associated with malaria, and therefore quinine is a desirable adjuvant to other drugs. Mr. Hare, Surgeon of the 1st Bengal Fusiliers, advocated its use most warmly, not only by mouth, but as an injection, and his results certainly appeared to confirm the justness of his views. Less importance is attached to them now, but still the value of quinine in malarial dysentery is recognised, and it should be, and is, given. Again, in the splenic form, sulphate of iron may be given with advantage; but it is to be remembered that neither quinine nor iron is likely to be of service if they are given when the portal system is congested, or when the intes-

time is in the state of engorgement of the catarrhal process. A difficulty in cases of debility often naturally arises about giving ipecacuanha, but it is better tolerated than might be supposed, even in the weak and anæmic; and its use may be preceded by some cordial, whilst support may be given afterwards, for, though otherwise depressing, it is certainly removing the *fons et origo mali*, and so doing a little evil with great good.

Where dysentery is of the scorbutic form it is necessary to use better food—vegetables and fruit. Astringents, with mineral acids, may be expedient. Under this treatment the dysenteric symptoms abate with the general improvement in health. In such conditions the bael or the koorchee are useful with Dover's powder. But whenever the urgency indicates any great access of inflammatory mischief or congestion of a catarrhal nature in the mucous membrane or around the ulcers, the ipecacuanha must be again resorted to. When the catarrhal or congestive follicular stage has passed into the ulcerative stage, the question is, What is to be done for these ulcers, this thickened state of the bowel, &c. ?

The object is to give rest, to support the strength, and to avoid all irritation and recurrence of inflammatory action. Turpentine (twenty drops thrice a day) should be given, with local medication, silver nitrate injection, and, where the rectum is implicated, ergot or opiate enemata to allay tenesmus and pain. Large enemata of tepid water are also useful. It will take time for the ulcers to heal, but it is remarkable how rapidly they seem to do so under favourable circumstances and careful attention to diet and treatment.

In advanced cases, where ulceration and sloughing have occurred, opium or Dover's powder to the extent of allaying pain or irritation will be necessary, but care must be taken to avoid opium intoxication. It has been recommended by Waring to combine it with small doses of nitrate of silver; but I cannot say that I have seen any special benefit from this remedy, though in some chronic cases I may have found it useful. In cases of hæmorrhagic dysentery, where the loss of blood is great, ergot as an enema has been found useful. If the hæmorrhage be profuse it may be desirable to use tannin in the same way; but otherwise, astringents are contra-indicated in acute dysentery.

Preparations of iron with calumba are often serviceable during recovery, and the greatest care must be taken to avoid any error in diet, which for some time must be of the simplest kind.

Rest and diet are most important elements in the treatment. Milk should be given in 3vi doses every hour or two. The food must be of the blandest and most simple character, and all solids should be avoided in the sloughing and ulcerative or gangrenous stages; it is essentially necessary to support the strength, and animal broths are desirable, with a certain amount of wine or other alcoholic stimulant as may seem most expedient and suitable to the habits of the patient. Where the inflammatory action is sthenic, and the pain is great, the use of a few *leeches* over the swollen and tender bowel may be useful; but I believe such cases to be quite exceptional. Opiate enemata at night, to give rest and relieve the tormina and tenesmus, will often be beneficial; but again I would say that it is necessary to beware of inducing narcotism.

In malarial cases I have already said that quinine is necessary. It should be given until the patient is cinchonised, and paroxysms of fever should be anticipated by the exhibition of full doses. Personally, I have seldom given more than five grains.

In cases of dysenteric liver-abscess, if the abscess point or become sufficiently apparent to admit of the operation, it should be freely opened, and the pus drawn off through a drainage-tube; but the probability of the abscess being multiple should be borne in mind, and that if it be so there is not much hope of permanent benefit. Still, it is possible that it may be single, and no prospect of affording relief should be neglected. And there are cases in which, though the success may be only partial, yet, if it afford any prospect of relief, the operation should be performed; even as a measure of temporary relief, though it cannot save life, it is expedient.

I propose now to consider the subject of chronic dysentery, the morbid changes that accompany it, and the treatment, especially of those cases that are not unfrequently seen in this country as the result of disease contracted in India, China, or the tropics. Tropical diarrhoea frequently follows, and in many instances really is a form of, chronic dysentery; to this I would

invite special attention, as it is so often met with among returned Indians and others, and is a form of disease which, though always serious, is more manageable and amenable to treatment than might be supposed.

Much might be said in respect of the low forms of diarrhœa that occur in the ill-fed, malaria-poisoned, anæmic natives so often seen in some parts of India, in gaols and other localities, but especially among the sufferers from starvation during famines.

The diseased conditions resulting therefrom have been the subject of special investigation by Dr. D. D. Cunningham, who undertook a most exhaustive examination of the pathological changes that took place in the intestines of the famine-stricken inhabitants of Southern India. His report not only throws much light on the special pathology of famine bowel-complaint, but has an important bearing on chronic diarrhœa generally.

I have discussed the subject of acute dysentery and its treatment, the chief element of which is the use of ipecacuanha in large doses. I said little about any other remedy—except opium—for really none other is, as a rule, necessary. But, in the conditions of which I have now to speak, other remedies may be required, according to the state or stage of disease, and it is to these conditions I now ask your attention.

First let me speak of the sub-acute condition, into which the acute form is liable to pass by recurrence of dysenteric action in the bowel, from any cause, after the acute symptoms have passed away, or, as may happen, when it assumes this state from the outset, it may be, after complete subsidence of the acute catarrhal condition. There are pain, tormina, and tenesmus, though less than in the acute, and, when the disease has lasted some time, it is probable that ulceration, though not necessarily extensive, has taken place. In such cases ipecacuanha must again be resorted to, and probably the combination of bismuth, carbonate of sodium, and quinine.

When there is much pain on pressure on the abdomen, and the thickened gut can be felt on palpation, counter-irritation over the part most affected may be of service. When there is much tenesmus, indicating rectal complication more than usually severe, opiate injections and large enemata of warm

water are indicated, with Dover's powder at night, and injections of weak solution of nitrate of silver.

As the sub-acute symptoms give place to those of a more chronic character, indicated by still frequent evacuations, with more or less straining and tenesmus, the discharges being mucous and occasionally tinged with blood, the internal use of twenty-drop doses of oil of turpentine, every third or fourth hour, will be of service. This is a remedy to which I attach much importance. Its power of expediting the reparative processes is shown by its causing granulation in an indolent chronic ulcer, say on the leg. When given in fifteen- to twenty-minim doses the effect is most remarkable; the surface becomes florid instead of dusky, red granulations form, and cicatrisation rapidly results. I have no doubt it acts in a similar way in the ulceration of the bowel, and I have often been gratified with the rapid improvement that has attended its use.

Whilst any sign of activity in the dysenteric process continues, it is imperatively necessary that the strictest attention should be paid to diet, and that all solid or irritating articles of food should be carefully avoided. The use of alcoholic stimulants must be most carefully regulated, and, as a general rule, when there is no special reason arising out of former habits or great depression of the nervous system, it is better to avoid them entirely.

The greatest attention must be paid to clothing: flannel should be worn next the person; chills and sudden alterations of temperature being most carefully avoided. All irregularities of living must be sedulously shunned.

Chronic dysentery is of more than one kind. There is that which follows, or rather is left by, an acute attack, when it has not yielded entirely to treatment, and the bowel has become structurally diseased—*i.e.*, ulcerated, thickened, congested—after the first urgent symptoms have passed away.

There is another variety, which never was acute from the beginning, or scarcely even sub-acute. It begins insidiously and goes on so. It may last for years, and then the two forms are somewhat alike, though in their origin they differ. The chronic form that follows the acute is apt, indeed, to be more severe and to prove more frequently fatal than the other, which

is more enduring, occasionally intermits, and though in the end perhaps fatal, is more slowly so. I remember a lady who suffers from this form of chronic dysentery, who first came under my care in India many years ago. Even then it was not the first attack. Though frequently ill and debilitated, this lady could not be said at any time to suffer from more than chronic dysentery. I know others who have suffered for years, and even go backwards and forwards to India. But what a precarious life! Such cases are not very uncommon, and a considerable share of the trouble to which old tropical residents are liable is due to this disease. They are very apt to be troubled with hæmorrhoids, either internal or external; and it may be difficult to say how much of the symptoms is due to the hæmorrhoidal affection, how much to chronic ulceration of the bowel, or how far they may be attributed to contraction and stricture of the gut; such stenosis of the rectum being liable to induce attacks of tenesmus and the passage of mucous stools tinged with blood. The admixture of the mucous or sanguineous discharge *with* fæculence points to rectal dysentery; whilst the blood and mucus *following* the discharge of fæcal matter indicates the hæmorrhoidal condition. In many cases it is exceedingly difficult to differentiate one from the other. Such cases are liable to intermittent attacks of acute or sub-acute mischief, and cause great suffering; others are brought on after the exposure to chill, the disordered digestion and functional derangement of the liver and portal congestion accompanying that state rendering the subjects of them chronic invalids. So long as the thickened and ulcerated state of the bowel continues, so long is the person liable to suffer from symptoms of chronic dysentery.

In the treatment of chronic dysentery a most essential condition is to quit the place where the disease was contracted; not merely to go to the hills, where rarefied air and low temperature would be injurious. Entire change of climate is necessary. If in Bengal, for example, a sea-voyage is good to begin with, or, better still, a visit to Europe, where the sufferer should remain until the symptoms have been removed, and for some time after the action of the bowels has been quite restored to the normal state.

The pathological conditions of the bowel are interesting and

various. There is either a continuous state of chronic ulceration in some part of the gut, which is thickened and indurated, or there is stricture from the cicatrix that has been formed, and it may be that the whole calibre of the intestine has been contracted until complete stenosis forms. In this state it is necessary that the patient be carefully watched, and symptoms treated as they arise, the closest attention being paid to his diet and to protecting him from vicissitudes of climate. Dover's powder, with bismuth and sodium carbonate in five- or ten-grain doses, especially if there be pain or tenesmus, should be given, with immediate recurrence to the larger doses of ipecacuanha if any symptoms of acute or sub-acute mischief recur. Sulphate of copper in quarter-grain doses, combined with half a grain of opium, in a pill; or the turpentine (as before mentioned) in fifteen- and twenty-drop doses three times a day may be given.

Solutions of iron (especially if there be anæmia), quinine, and nux vomica have their advocates. The bael (*Ægle marmelos*), and the koorchee (*Wrightii anti-dysenterica*) in decoction, are often efficacious, and there are astringents that enjoy more or less repute.

Let me give a brief description of the cases in which the bael fruit is likely to be useful.

In the chronic condition of dysentery—in which the bowel is thickened, ulcerated, or indurated from cicatrisation, and subject to recurrence of sub-acute action (indicated by straining and the discharge of mucus and blood), and the entire intestinal mucous membrane is sympathetically involved—the use of the fresh bael is likely to be of service; but it may be necessary to associate it with other remedies, such as opium or Dover's powder. From the power it possesses of giving tone to the alimentary canal generally, of improving the condition of the mucous membrane and its glandular apparatus, and of favouring cicatrisation, it will not unfrequently aid in producing satisfactory results where other remedies, even turpentine, have failed. Vegetable and metallic astringents and tonics, such as kino, catechu, tannin, hæmatoxylin, eucalyptus, *Wrightii anti-dysenterica*, pomegranate, sulphate of copper, acetate of lead, alone or combined with opium—

may give temporary relief, but the disease continues to advance, the least error in diet, or alteration in temperature or hygrometric condition of the air, aggravating the symptoms. Such cases are not infrequent in this country; and no doubt the patients have taken the wisest and most effective step for restoration to health in coming home—a step in comparison with which drugs are insignificant. In such cases the bael will sometimes materially aid in restoring the diseased intestine to its normal condition. Of course it will not alleviate all the morbid conditions that may arise in cases of chronic dysentery, and recurrence of acute symptoms may need more active treatment. But I think it will sometimes be found that, under its influence, the reparative changes in the large intestine progress quietly until cicatrisation is accomplished, thickening is removed, and, as far as may be, healthy action is restored.

Unhappily, many cases have not so favourable a termination, and the result is fatal, after long and severe suffering: the structural changes in the bowel are beyond repair, and the patient at last succumbs. In others the disease, though not fatal, is very tedious: a cicatrix may form, but the gut remains thickened, indurated, and contracted, its functions are imperfectly performed, and a condition of chronic disease and suffering remains; diarrhoea, sometimes dysenteric, continues, and the patient is worn and wasted by continued suffering. The evacuations are light-coloured—grey, sometimes yellowish—passed without pain or tenesmus, but at times accompanied by both, and mingled with blood and mucus. This ultimately undermines the strength, and the patient sinks from exhaustion. In the stages that lead to this state of things the bael is likely to be of service in retarding, if not in altogether checking, the mischief.

It is desirable that the bowels should be kept free from accumulations. This may be effected by small doses of castor oil or by saline laxatives; and one cannot too strongly insist on the necessity of obviating congestion of the hepatic and portal circulation. Enemata of tepid water or of congee-water (rice) to wash out and soothe the bowel, the use of opiate enemata at night to allay tenesmus and give rest, are useful; and in the rectal form of dysentery, local medication with

injection of solution of nitrate of silver, of ergot gr. xij in some starch, or five or six grains by the mouth, may prove very useful. The warm bath is sometimes beneficial, and all measures that ensure rest or have a soothing action.

Where the bowel is thickened and tender on pressure, the application of a blister over the tender part, or of tincture of iodine—the counter-irritation being maintained for some time—may be useful; and, above all, the diet must be carefully regulated, consisting of mild unstimulating food, solids being given only with the greatest care. Rest and time, with the above measures, carried out in a favourable climate, are likely to be successful. But whatever is done, time is essential. Where complications exist, they must be dealt with according to their nature. Hæmorrhoids must be prevented from causing hæmorrhage, and if they are painful or swollen must receive such local treatment as their condition suggests. Splenic enlargement with cachexia will require quinine and iron, or iron alone; hepatic enlargement demands such measures as are indicated by the nature of the enlargement. Should liver-abscess gradually supervene, it must be watched, the strength supported, and, if it seems practicable, the pus must be evacuated; liver-abscess is not always multiple when it occurs in combination with, or, as some think, in consequence of, dysentery.

In chronic dysentery of the scorbutic type, indicated by the spongy bleeding state of the gums, and the general state of cachexia, perhaps associated with splenic mischief, preparations of iron, the solution of the perntrate, iron and quinine citrate, potassic tartrate, or other easily assimilable form, with vegetables, lime-juice, and carefully regulated diet, are needed. In those cases where malarial poisoning has induced anæmia, splenic cachexia, and general atrophy of the tissues, including the mucous membrane and glandular structure of the intestine—a condition which is manifested by diarrhœa, a low adynamic type of disease which is as much dysentery as diarrhœa, and forms, no doubt, a large proportion of the cases called tropical diarrhœa (of which more anon)—it may be that milk is the only food that will be assimilated, and the use of it the only treatment on which any reliance can be placed. Some of these cases of chronic dysentery recover under the influence

of change of climate, careful dieting, absolute rest, and attention to symptoms as they arise. Medicines no doubt are at times of great service, but recovery depends more on hygienic measures and proper food than on drugs.

Many patients linger for months or years and succumb at last. The lesions in the bowel are never repaired. Not only is the large intestine thickened or atrophied, ulcerated or contracted, but the small intestine also becomes atrophied and degenerate. The mucous membrane and its glands are wasted, the power of absorption is gradually lost, and the patient sinks from inanition and asthenia. The value of ipecacuanha in the treatment of this form of dysentery, when, years after the first attack, there is at any time a return of the acute symptoms, is great. By timely attention to this much suffering may sometimes be spared, and a patient relieved who otherwise might have drifted into a hopeless condition of chronic dysentery.

The question is often asked, in the case of persons suffering from chronic dysentery, where they had best live in this country? And I generally reply that they may live almost anywhere if there be a home, with its special comforts, good nursing, and dietetics; but when this is attainable anywhere, then to select some dry and not too much exposed locality, avoiding the vicinity of low or swampy ground—to be on gravel rather than on clay. Avoid the east coast in the winter; select the milder air of the south of England—Hastings, Bournemouth, Torquay, &c. If the cold of the winter or spring be much felt, as it often is, go to the south of France or the Riviera. These, however, are refinements, and one can seldom say they are absolutely indispensable. The great change of coming to Europe is the most important one, and it matters comparatively little, when there, where the patient reside, if he be placed in a comfortable home, with all the advantages of nursing, feeding, and tending, such as only his own friends and relatives can give. The question will, sooner or later, arise as to the propriety of returning to India or other tropical abode, and the calls of service, of anticipated promotion, or of duty or business, and, above all, the *res angusta domi*, urge him to go sooner than may be expedient, though he

may feel, or think he feels, quite well. It is often a difficult question to answer. And one has to decide between the results of disappointment, mental depression, anxiety, and the needs of the service, on one hand, and that of a certain still existing state of disease on the ultimate welfare of the patient on the other. It becomes a question of the choice of evils—how much may a man risk; how much may one sanction? I advise my readers not to consent whilst any symptom of dysentery remains, or until some time after the bowels have resumed their normal action, and all pain, tenderness, thickening, and irritability of the colon or rectum have passed away. There are cases where it may be necessary to give a modified assent, but if so, it must be coupled with the strictest caution as to the risks and the necessity for doing all that is possible to obviate them.

I have known men come and go, suffering from chronic dysentery, and recover at last; but I have more frequently known the contrary. It is our plain duty in giving advice to make health the first consideration. If the patient be a free agent he must exercise his own discretion as to how he deals with your advice; but never leave him in doubt as to your opinion. I would repeat, the advantages of change of climate in this disease are inestimable, and, if combined with careful living, they far outweigh all else.

ON THE ÆTIOLOGY OF THE SO-CALLED SCURVY-RICKETS.

BY HENRY ASHBY, M.D., F.R.C.P.,

Physician to the General Hospital for Sick Children, Manchester

IN a recent number of the *Practitioner* (February 1894), Dr. Sutherland has given a good summary of our knowledge concerning the ætiology, symptoms, and treatment of scurvy as it appears in infants and young children. In his prefatory remarks he has referred to some writings of mine, from which he gathers that I do not altogether accept current views on the subject. Dr. Sutherland has unhesitatingly adopted the views of Drs. Cheadle and Barlow, that the anæmic and hæmorrhagic condition which at times accompanies rickets is the result of the child having been fed upon a diet from which fresh food has been excluded, and is indeed true scurvy. The alternative view is, that the hæmorrhagic diathesis is simply an exaggeration or an excessive form of the anæmia which is always present in severe or acute rickets.

My own feeling certainly is, that the presence of scurvy in these cases has not been certainly proved, that in some cases at least there has been no deprivation of fresh food, and that there is much to be said in favour of the view that there is a close connexion between this hæmorrhagic condition and acute rickets.

I will endeavour to state some of the difficulties which appear to me to require clearing up before we finally accept the hypothesis of scurvy.

We see infants between the ages of six months and two years, and perhaps most frequently of the ages of eight months or nine months—who have perhaps suffered much from bronchitis, and

who have been fed, either from necessity or choice, on anything but an ideal diet—very anæmic, with rickety bosses on the ribs, the chest falling in at every inspiration, while the long bones or the epiphyses are more or less tender. Such cases pass muster as acute or severe rickets. Perhaps after a few days the urine is coloured and stains the napkins, and it is evident that blood is oozing from the capillaries of the kidney or bladder. Or there may be evidence of bleeding beneath the periosteum or elsewhere. We naturally ask, Where does rickets end and scurvy begin? Why assume the presence of a new disease the moment that a tendency to bleed is added to an anæmia? Do not we see the same thing happen in other diseases? In the most severe cases of hereditary syphilis in young infants, it is not uncommon to see a tendency to bleed, the blood oozing from the cracks in the lips and from the scabs about the mouth and nose. Are these cases of "scurvy syphilis"? Again, in tuberculosis in children there is often marked anæmia and a tendency to bleed from the gums and elsewhere, though there has been no question of a deprivation of vegetables or fresh food.

Are we to consider scurvy as a disease which is brought on by the absence of fresh *vegetables* in the dietary, or are we to say the absence of fresh food generally? There seems to be some doubt about this. On all hands fresh vegetables are looked upon as certain preventives of scurvy, but with regard to fresh animal food, such as flesh and milk, there is no such agreement. An absence of fresh vegetables from the dietary of an infant can hardly cause scurvy, for during the first year neither grapes nor oranges, potatoes nor watercress, find any place therein. And while it is quite true that in some of the reported cases of so-called scurvy-rickets there is a history of almost exclusive feeding on preserved foods, such as tinned milk, or dried milk foods, yet this is by no means always the case: in some of my cases fresh milk, raw meat juice, and in one case potatoes, entered into the diet. It is quite true also that these cases are not commonly found in the children of the very poor, but rather among the middle-class, or lower middle-class. Dr. Cheadle has, I think, remarked on this, that the infants of the lower classes are saved from scurvy by the odd bits which they secure

from their parents' table. My own idea would rather be that the infants of the lowest class population are saved from scurvy by succumbing to some intercurrent disease, such as summer diarrhoea, or some wasting affection, before the stage of acute or extreme rickets is reached. The children who so suffer are those who have required the most scrupulous care, who have been "dragged up" so to speak, "coddled," and constantly kept in the house to prevent their catching cold, and who would never have survived had they been exposed to the "rough and tumble" life of a slum! In fact they constitute to a great extent the class we find suffering from laryngismus.

In the cases of scurvy collected by Dr. Sutherland, there is an overwhelming proportion occurring between the seventh month and the twenty-fourth (55 out of 71). In my own twenty-five cases, all were between these ages. This can hardly be accidental; surely it points to a close association with rickets.

In order to illustrate some of the points already referred to I may be allowed to mention some of the cases of this kind coming under my own observation. I have seen over thirty cases in the last few years, but some of these were among out-patients, and I am not able to give details, as unfortunately they were not followed up, and I have mislaid my notes. I am only able to give the details of twenty-five. In all the twenty-five there was well-marked rickets, as evidenced by the state of the bones. I do not mean to say that in every case the epiphyses of the long bones were much enlarged, because their enlargement only takes place, in many instances, after some months, and this also applies to the deformities seen in the bones of the skull; but in all the cases the bosses at the junction of the ribs with the cartilages were large, and in most cases there was a loss of rigidity of the ribs, so that they failed to retain their shape during inspiration. In all there was anæmia and evidence of hæmorrhages having taken place beneath the periosteum, or beneath the skin, or around a tooth which was being cut. The subcutaneous bleeding was mostly the result of handling or injury, but in exceptional cases it rather resembled purpura, the ecchymoses being scattered about the body. In eight there was blood in the urine, but never in excessive quantity; in others the urine was

dark from the presence of urobilin, the latter presumably present in consequence of the absorption of altered blood-colouring matter. In one there was a considerable loss of blood by the stools, the latter varying in colour from bright red to black. In most the spleen was just palpable; in one (in which there was purpura) it was much enlarged. The oldest was nineteen months, the youngest seven months, eighteen were under a year, and thirteen between the ages of eight and ten months. Two only were fatal, one from syncope and the other from diphtheria.

In all there was a history of aggravated dyspepsia, usually including obstinate vomiting, often diarrhoea. In most it was evident that extreme care had been exercised, or the child would never have survived; and there was a strong probability that, had not the parents been in a comfortable position and been careful people, the child would never have been reared. The common history given was that the child had been nursed at the breast for a while; this had been given up for various reasons, and then some form of fresh cow's milk was given. This giving rise to vomiting, flatulence, and pain, some other food was substituted. It often happened that one food after another was tried, their number and variety defying analysis. The commonest substitution was pancreatised fresh milk.

Attempting to analyse the various methods of feeding, I find that no one of the infants had been nursed at the breast up to the time of the development of acute symptoms. In three of the cases tinned milk, either preserved with sugar or dried, had been used almost entirely up to the time of the onset of symptoms. In one of these raw meat juice had been given daily in addition to the tinned milk. In eight¹ pancreatised fresh milk had been used exclusively or very largely. In four fresh milk with some farinaceous food had been employed. In three fresh milk and barley water, or cream and rusks, or cream or milk with a well-known malted food. In one of the cases the sterilised milk of a well-known dairy company, and also some fresh meat juice, was being given. In one case, that of a boy of seventeen months with well-marked rickets and hæmorrhages,

¹ One of these patients, a boy of eighteen months, who was admitted to hospital with marked "scurvy" rickets, had had a fresh raw egg daily for three weeks, and some Valentine's meat juice.

who belonged to the poorer class of parents, the latter confessed to having given him "rusks, cornflour, bread and milk, potatoes, beef tea, milk puddings, and bread and butter."

In connexion with the above I may refer to two cases published by Conitzer (*Wien. med. Blätt.*, Nos. 12 and 13, 1894). In one case (nine months) the child was fed with fresh milk at first, but later with "sterilised" milk entirely. The other (eleven months) had "sterilised" milk, and for the last few months milk sops and potato broth in addition. V. Starck has also published several cases (*Jahrbuch f. Kinderheilk.*, Vols. 37 and 38) which had been fed on diluted milk, and in one case this was supplemented with "*Kindermehl*," broth, and yolk of egg.

Far be it from me to say that the feeding of these children had been right or proper; but I cannot see how it can be claimed that some at least of them had suffered from scurvy as the result of deprivation of fresh food. It is quite true that much of the fresh milk taken had been boiled or sterilised, and in some cases pancreatised, but boiling potatoes and cabbages does not deprive them of their antiscorbutic properties; and further, how are we to explain the so-called scurvy in the children who had taken raw meat juice and potatoes?

The fact that recovery takes place more or less quickly after antiscorbutic treatment has been begun, is one of the strongest points urged in favour of the scurvy theory. In some undoubtedly, improvement quickly begins after suitable treatment has been commenced. Milk or cream or whey, according to the capabilities of the child, raw beef juice, orange juice, and emulsion of cod-liver oil, with as much fresh air and sunlight as possible, has been the treatment in my own cases. In the worst cases improvement was slow, and in several cases fresh bleedings made their appearance after treatment was commenced. In two cases reported by V. Starck, in which there was rickets and periosteal hæmorrhages with a history of syphilis in the parents, the patients were cured with calomel without any change of diet. My own belief certainly is that fresh air is just as important as fresh orange juice, and that fat in some form or other if it can be digested and absorbed is also of the highest importance. There cannot be much doubt that a long-continued use of any one food, breast

milk alone excepted, is bad, especially if that food is poor in fat. Carbohydrates cannot take the place of fat permanently. Sterilised milk, if it has been long heated, especially at the higher temperature of 102° to 105° C., is apt to be injured as a food in consequence of the separation of the fat. Pancreatised milk or malted milk is good as a substitute, but it is not safe if it is to form the sole food for months together.

In conclusion, I certainly think that it would be wise to drop altogether the word scurvy in connexion with these cases, and to speak of them as rickets with a hæmorrhagic diathesis. That there is a close association between the two conditions few will deny; what that association is it is impossible to say. We know so little about the pathology of rickets, so much has yet to be learned about its ætiology, and the links which connect the dyspepsia and bad feeding with the changes which take place in the bones, viscera, nervous system, and blood, that we are hardly in a position to form hypotheses. There can be no doubt that indigestion and improper food are largely responsible for rickets, and are thus more or less directly concerned in the hæmorrhagic diathesis which supervenes in some cases. If the word scurvy is to be retained for such cases, we must enlarge its ordinary signification.

CHRONIC LACUNAR TONSILLITIS.

BY JAMES B. BALL, M.D., M.R.C.P.,

Physician to, and in charge of the Throat Department at, the West London Hospital.

THE faucial tonsils present on the surface one or more large slits or several smaller openings, oval, slit-like, or triangular in shape, and of varying size. These openings lead into recesses, the lacunæ or crypts, or follicles as they were formerly called. These recesses vary in depth, shape, and direction, and some have smaller recesses leading from them. They are lined with squamous epithelium continuous with that of the neighbouring parts, and a few mucous glands open into the cavities of the crypts. Each tonsil may be regarded as an association of diverticula, or ingrowths of the epithelium which in this region covers a mass of adenoid tissue. Owing to this peculiar form, and to the more or less numerous orifices which are easily seen on the surface, especially in enlarged tonsils, these bodies have in former times been regarded as secreting organs. Nor is this view altogether obsolete, for in the latest and most important work on medicine which has appeared in this country it is expressly stated that "the office of the tonsils is to secrete a lubricating fluid to the bolus of food as it passes into the pharynx." Probably, no one at the present day, who has given any thought to the subject, believes that such is their office. These masses of diffuse adenoid tissue and lymph follicles, situated at the entrance to the pharynx, and more or less continuous with similar masses at the root of the tongue (lingual tonsil) and the vault of the pharynx (pharyngeal tonsil), are not secreting organs in the proper sense of the term.

No doubt mucous glands are situated in their substance, and these discharge mucus from their orifices on the free surfaces of the tonsils, or into the crypts. It is well known also that numerous lymph corpuscles are constantly passing to the surface of the tonsil between the epithelial cells. The epithelium in fact presents at various points breaks in its continuity, resulting probably from the passage through it of leucocytes, and in any case obviously facilitating their passage. Most people are at present inclined to the view that the principal function of the tonsils is connected with the production and discharge of leucocytes (phagocytes) which appear to possess the power of taking up foreign bodies and especially micro-organisms.

There is no doubt a constant exudation of what one may loosely call secretion from the lacunæ of the tonsils. A certain number of mucous glands may open into a crypt and discharge their secretion into its cavity. Leucocytes constantly make their way from the substance of the tonsil into the crypts, and there is going on here as elsewhere a more or less constant desquamation of squamous epithelial cells. All these find their way readily enough in the normal condition to the free surface of the tonsil, through the cryptic orifices. But abnormal conditions of the tonsil are very common. The tonsils are frequently the seat of acute or subacute inflammatory processes, and are often affected by chronic hypertrophy to a greater or less degree. These processes may lead to narrowing of the orifice or of some portion of the lacunar tract, and thus certain cavities get cut off from free communication with the surface. One way in which the crypt cavity becomes narrowed in hypertrophied tonsils, is by a sort of villous in-growth of the epithelium into the lumen of the crypt, each minute villus containing a lymph follicle. This process, which has been especially described by Sokolowski, of Warsaw, has doubtless much share in producing narrowing of the lacunæ, but of course this may come about in different ways. Inflammatory processes on the surface of the tonsils not unfrequently lead to adhesions of the opposed edges of the lacunar slits, causing a bridging over, with a partial, or even complete, occlusion of the lacunar orifice. Retention of the contents of the cavity

may result, with sometimes considerable dilatation of the crypt below the point of narrowing. Every one who has examined hypertrophied tonsils, after excision, will have not unfrequently observed in the excised tonsil a yellowish white mass, usually of a soft cheesy consistence, consisting of the retained and altered contents of a lacuna. Every one, too, must have observed occasionally, when examining the throat, the presence of one or more such cheesy masses occupying the orifices of the lacunæ. It is not very uncommon also to observe upon the tonsil a pale yellow spot covered with mucous membrane. These spots correspond to a cheesy mass retained in a crypt, whose orifice has become completely occluded. This may be easily tested by incising the spot and evacuating the contents.

It may be observed, in passing, that this morbid product of the retention and accumulation of the lacunar contents, consisting chiefly of epithelial cells and *débris*, has nothing to do with the whitish exudation which forms in and about the lacunar orifices, in cases of acute lacunar, or as it is more usually called, acute follicular, tonsillitis. Nevertheless there seems to be a good deal of haziness in the minds of many upon this point, and the descriptions in several of the most recent text-books by no means tend to make the matter clear. The patches in follicular tonsillitis are spoken of as "catarrhal products, produced in and exuding from the crypt;" or "as resulting from an alteration in the character and quantity of the secretion and interference with its free outflow;" or again, as "due to retention of secretion in the lacunæ." Now the deposit which is seen in and about the cryptic openings, in a typical case of acute follicular tonsillitis, is not a secretion exuding from or retained in the crypt, but it is an inflammatory exudation composed mainly of leucocytes and fibrinous fibrillæ, often rather pultaceous in character, but often also distinctly membranous, and in this case, differing little, if at all, in its structure from diphtheritic membrane, although owning an essentially different cause.

The collection of a cheesy mass in a tonsil crypt is a not unfrequent occurrence, and neither its presence nor discharge need give rise to any symptom or inconvenience. On the other hand, if many crypts are implicated, if large concretions form, or if the process is continued over a long space of time, the patients so

affected are liable to suffer from various troubles, for which they ultimately seek medical advice. The chronic troubles associated with the retention of cheesy masses in the tonsil crypts have long been recognised and assigned to their true source, and some text-books give a more or less complete account of the disease. On the other hand, the disease is often overlooked or misapprehended. For this reason it has seemed to me worth while to give a short sketch of the symptoms and treatment of this not very uncommon complaint.

The name chronic lacunar tonsillitis which has been given to this complaint seems to me to be sufficiently appropriate, although other terms, such as "caseous tonsillitis" and "chronic desquamative lacunar tonsillitis" have also been employed. In most text-books the condition is not specially described, but is merely touched upon, in connexion with chronic hypertrophy of the tonsils. In most cases the tonsils are hypertrophied, but this is not invariably so, and in many cases the hypertrophy is only slightly marked at the time the patient comes under observation. The disease is rarely observed in childhood. It is most common in young adults, and is equally frequent in males and females.

As already indicated the essential cause is some narrowing of the lacunar tract or orifice, impeding the free egress of the contents. There is however another important factor in the causation of the disease—namely, an abnormally free desquamation of the epithelial cells. The cheesy masses are in fact mainly composed of these elements more or less altered. The epithelial cells are arranged in layers, those on the outer surface, and therefore most recently shed, being the least altered. A certain proportion of leucocytes is present, but rarely in any number. Towards the central part of the plug especially are found fatty particles and cholesterine. *Leptothrix* filaments, and various other micro-organisms, are also found in abundance.

Patients affected with this complaint expel from the tonsils, from time to time, these yellowish-white cheesy plugs, their expulsion being favoured by the muscular contractions in deglutition. The masses vary in size from a millet seed to a pea, or they may be still larger. They usually have a disagreeable odour. They are often expectorated and attract the notice

of the patient, who may, or may not, feel disquieted at their appearance. Often enough, feeling some discomfort in the throat he looks in the glass and perceives similar plugs in the tonsils and thus becomes aware of their source. He may seek medical advice merely on account of their presence, or in consequence of some discomfort resulting from them. The functional troubles which are experienced by patients affected with this disease are very various in kind and degree, and, as in most other throat affections, they bear relation to the nervous irritability of the individual. Pain is a common symptom. The pain often radiates towards the ears, and it is apt to be felt more especially when swallowing saliva, less when swallowing food. Sometimes it is not so much actual pain as a feeling of burning or choking, or of pricking or tickling in the throat, or a sensation of the presence of a foreign body. The pain or discomfort is often one-sided, and may be correctly referred to the region of the tonsil by the patient, who indicates a spot externally, between the angle of the jaw and the cornu of the hyoid bone, corresponding to the tonsil. Troublesome coughing fits may be present, especially in the morning. The breath has often a slightly foetid odour, and an unpleasant taste is perceived at times by the patient. After the expulsion of a concretion from the tonsil there is sometimes relief of all the symptoms for a day or two.

The course of the complaint is in general very chronic, and the symptoms may extend with more or less intermission over years. The discomfort in the throat is apt to be increased by the use of the voice, especially in singing. Smoking sometimes aggravates the symptoms. Many complain of an increase of the symptoms whenever they catch a little cold. Apart from these aggravating influences, most patients suffer from time to time from definite subacute exacerbations, during which all the symptoms are more marked.

On examining the throat the tonsils are usually found enlarged. The enlargement however is generally not very marked. In many cases owing to adhesions between the tonsil and anterior pillar the tonsil is to a great extent concealed from view. One or more yellowish-white spots may be seen, consisting of cheesy plugs occupying the lacunar orifices. In some cases careful

search may be necessary before any plugs can be seen. It may be necessary to retract the pillar or to examine the posterior or upper part of the tonsil with the rhinoscopic mirror. Sometimes a careful search may fail to discover any concretion in the lacunar orifices. In this case pressure with the tongue-depressor, or the introduction of a probe into a lacuna, may bring to view one of these cheesy masses, not previously visible. When the tonsils are small there are two points, which according to M. Gampert should be particularly explored—namely, a large crypt, the orifice of which is covered by the anterior pillar, and the upper extremity of the tonsil between the pillars, the region of the epitonsillar fossa. The cheesy plugs will be found to be easily removable by means of a probe or spud, passed into the crypt.

As already mentioned subacute exacerbations of the symptoms occur from time to time. These exacerbations last two or three days or longer, and may cause some general malaise; the pains in the throat are more marked, otalgia is common, and eating and speaking are somewhat painful. If the throat be examined during one of these exacerbations, the lacunar orifices are more than usually blocked with cheesy masses; the tonsils may be slightly swollen, and there is slight redness in the vicinity of the lacunar orifices. The cheesy plugs are removed with more difficulty than usual, being apparently more adherent to the surface. After removal a fresh plug will be found presenting at the orifice the following day. After a second or third removal they reappear more slowly. A less frequent occurrence, during the course of one of these exacerbations, is the appearance of a yellow spot, consisting of a cheesy mass covered with mucous membrane, which ulcerates through and after evacuation leaves a small ulcer which heals in a few days.

The mere appearance of a caseous plug in a tonsil does not, of course, call for any special treatment. It is of not unfrequent occurrence, giving rise to no inconvenience, and only accidentally discovered. When, however, the formation of these masses in the crypt is a chronic process, and is associated with various discomforts, such as those above mentioned, the complaint calls for treatment, and moreover the results of proper treatment are extremely satisfactory. In every case in which the symptoms

described above are present, and no other obvious cause is found, this condition should be thought of and the tonsils carefully explored, and an enquiry made for a history of the expectoration of cheesy masses. Many of these cases are unrecognised. The condition of the tonsils is overlooked, owing to a careful search not being made. The symptoms are attributed to hysteria; or harmless granules on the posterior wall of the pharynx, or dilated veins at the base of the tongue are destroyed with the galvano-cautery, the patient meanwhile deriving no relief.

I do not intend to describe the various methods of treatment which have from time to time been recommended for this complaint. I wish rather to insist on the method of treatment which I believe to be the most rational and the most effective—namely, opening up the crypts by free division of the crypt walls, the process which the French term *discission* of the tonsils. This can be accomplished by tearing through the tonsil tissues with a blunt hook, inserted into the crypts. This method, however, is sometimes very difficult, a great drag on the tonsil being required to tear through the tissue, and the procedure is consequently rather painful. For this reason many operators employ a cutting instrument, consisting of a small blade fixed at right angles to the handle. This is a great improvement on the hook. I prefer, however, a hook-shaped blade to a straight one, as the point having been inserted into a crypt can be more easily brought out at another orifice by a simple rotation of the handle. The instrument I employ is a small hook-shaped knife¹ fixed at right angles to the handle. The point of the knife is blunt, but at the same time sufficiently fine to allow of its insertion into the smallest cryptic orifice.

The method of procedure is as follows. The operator sits in front of the patient and throws a good light into the throat by means of the ordinary forehead reflector. The tonsil to be operated upon is anæsthetised by the application of a ten or twenty per cent. solution of cocaine. This however is by no means necessary, as the operation is not really painful. The tongue being depressed with a spatula, the point of the instrument is inserted into one of the cryptic orifices, and is brought out at a neighbouring orifice, or, if necessary, it is

¹ Made by Mayer and Meltzer, of Great Portland Street.

forced through the tissue. The intervening tonsil tissue is then cut through and this can usually be effected by simple rotation of the handle of the instrument. In this way several crypts can be opened up at a sitting, and any cheesy masses that may be present are evacuated. The bleeding is never considerable. Sometimes, especially if the tonsil operated on is large, there will be left some loose tags of tissue which should be trimmed off with a pair of curved scissors. Adhesions between the tonsils and faucial pillars can be divided in the same manner as the crypt walls. From two to three sittings or even more may be required for each tonsil, and a week may be allowed to elapse between each sitting. To diminish the tendency of the cut surfaces to unite, a strong solution of iodine (iodine 90 grains, iodide of potassium 90 grains, water one ounce) should be applied at the termination of each sitting. In any case this is a good antiseptic application, and should never be omitted. A little soreness may be felt after the operation, but this never continues more than a day. A boric acid gargle may be used during the intervals between the sittings.

By the above procedure patients suffering from chronic lacunar tonsillitis may be completely relieved of long-standing troubles. The alternative methods of treatment, such as evacuating the crypts and inserting caustics, are unsatisfactory and uncertain. If the tonsils are large and such as lend themselves to excision, that operation will, no doubt, be the most rapid means of cure, though it sometimes happens that after excision the process continues in the portions of the lacunæ which remain in the stump of the tonsil. In the majority of cases, however, the diseased tonsils are not sufficiently enlarged or of the kind that lend themselves readily to excision.

PRACTICAL POINTS IN THE TREATMENT OF VENEREAL DISEASES.

BY ROBERT TURNER, M.A., M.B. C.M. ABERDEEN,

Liverpool.

SIX months' experience in the outdoor treatment of venereal diseases at the Liverpool Seamen's Dispensary has led me to adopt certain lines of practical therapeutics which seem most suitable. These are not claimed to be original, but their success cannot be very much doubted, after a fair trial. The great enemy one has to contend with is alcohol in its various forms. It seems almost impossible for most seamen to keep away from it when ashore. In very few instances are orders obeyed so far as drinking is concerned.

Gonorrhœa.—Unfortunately, this disease is seldom brought to the notice of medical men in time. Often the many quacks who infest the large cities have tried their hands at "a cure" first of all, and that, too, at great cost to the patient. If the case is seen within the first three or four days, excellent results are obtained by the following treatment. To begin with, active purgation is insisted on during the inflammatory stage. For this purpose aloin pills, gr. i. in each, are given. This is an important part of the treatment too often overlooked. Not only does the aloin improve the appetite, but it also prevents chordee and gonorrhœal synovitis. The local inflammation is also found to be less severe. As regards the urethra itself, one cannot depend on the injection of a strong solution of silver nitrate. Two patients had been so treated at a German port, and they were convinced that their trouble had thereby been very much aggravated. In all early cases the most successful local measure

appears to be the application of dilute nitrate of mercury ointment, to which morphine, gr. j to ʒj, has been added. A lucifer match with a fine layer of cotton wool twisted round it is smeared with the ointment, and passed into the urethra three or four times a day. This causes no smarting, and in about eight or ten days the discharge has almost disappeared. At the same time an alkaline mixture containing hyoscyamus is given.

Should the case not be seen till later—say about three weeks—injections of *Liquor plumbi subacetatis*, ʒj to ʒvj of chloroform-water, do very well along with small doses of an emulsion of *copaiba* balsam given by the mouth. Here also the aloin prevents the dyspepsia and the pain in the loins, referable perhaps to the kidneys, which *copaiba* in effective doses is apt to cause.

Gleet.—The treatment of this sequela of gonorrhœa is the most disappointing of all, whether stricture be present or not. *Tr. opii* along with *copaiba* seems to do good; as also does *Friar's Balsam*, whatever its action may be. But one thing is certain—the drinking of beer tends to perpetuate gleet almost indefinitely.

Epididymitis.—Our dark-skinned brethren are very liable to this complication of gonorrhœa. Firemen are particularly subject to it as well as to bubo. The application of six leeches, followed by the liberal use of belladonna liniment, affords immediate relief. The leechbites allow of greater absorption of the belladonna taking place. Suspension is always carried out, but hot fomentations or poultices are seldom practicable with this class of patients.

Bubo.—When this has been opened freely the interior is rubbed out with cotton-wool wound on the point of an artery forceps, and soaked in carbolic lotion (1 in 10). The part is then dressed with iodoform emulsion containing a little pure ground coffee to disguise the odour.

Syphilis.—A noteworthy feature often found in cases of this disease is that they are complicated by malarial fevers. In such cases no drug can equal Donovan's solution. The majority of sailors to foreign parts have no faith in quinine; somehow they rely more upon arsenic in second or subsequent attacks. This

observation led to the use of Donovan's solution in syphilitic cases. If there be much anæmia, Blaud's pills do very well along with the mercury, and they counteract the purgative action of that metal, when pushed far enough.

Ulcers of the glans.—Several such cases have been treated, all of them contracted on the African coast. They have a quite distinctive appearance from those contracted in England. They appear usually on the dorsum of the glans, starting at the corona. They are first observed three or four days after contact, and gradually spread till about the size of from a sixpence to a shilling. They are more or less circular, flat, and pale at their base. In connexion with this, it is worthy of note that there is a tendency to drop the word "phagedænic" from surgery; but these ulcers are undoubtedly phagedænic, and perhaps peculiar to African contagion. They heal rapidly when dusted with calamine containing a little calomel. They always leave more or less deformity. That these ulcers are not syphilitic is proved by their early appearance and by the absence of other signs of the disease. They appear to be caused by a special organism which destroys the tissues either by itself or by its products. In one case gonorrhœa was present as well. The other cases were quite uncomplicated.

TWO CASES OF MULTIPLE NASO-PHARYNGEAL POLYPI.

BY A. MARMADUKE SHEILD, M.B., F.R.C.S.

Assistant Surgeon to St. George's Hospital, London.

THE first case was that of a single lady, *æt.* 36, a patient of Dr. Grange of Southampton, who came under my care in *June* 1893. For an indefinite time she had suffered from symptoms of nasal obstruction, with deafness and severe "buzzing" tinnitus. Two months before a small polypus, the size of a grape, came away spontaneously from the right nostril. The patient speaks with the usual muffled intonation of nasal obstruction. Nothing is to be detected anteriorly, but on inspecting the throat the fundus of a large polypus can just be seen hanging below the palate. The throat having been sprayed with cocaine, and the finger passed behind the palate, it was ascertained that two large growths were present, that they were pedunculated, moved somewhat on manipulation, and did not bleed. The growths were easily visible with the rhinoscope; they were of a pinkish hue.

On *June* 29 I removed the growths under ether, by the steel nail used for adenoids. The tumours being drawn tense by a curved vulsellum, the nail vigorously used easily peeled them away from the back part of the roof of the nose. There was very free hæmorrhage, which was checked by pressing a sponge wrung out of spirits of turpentine into the naso-pharynx. The patient made a rapid recovery, and quite lost all her disagreeable symptoms. The size and shape of these growths, now in the Museum of St. George's Hospital, is depicted in Fig. 1. In

consistence they were firm, and in structure they were composed of connective tissue and myxomatous material. They were, in fact, a firm variety of the ordinary nasal polypus.

The second case occurred in a young man, *æt.* 29. For nine months he had suffered from nasal obstruction and great difficulty of breathing. There was no deafness, and only slight epistaxis. His voice was altered in character, being very thick, dull, and muffled. His general health was excellent, but he gave the significant history that twelve years ago he had a small growth removed from the back of his nose by Mr. C. Heath. Anteriorly, under good light, a growth could be seen



FIG. 1 (Case I.)

through the right nostril, and on passing the finger behind the soft palate, which was somewhat depressed, a smooth rounded tumour, the size of a Seville orange, was at once felt. It moved very slightly, and obviously had firm attachments to the parts above, whence it grew by a stout pedicle. Some bleeding was caused by manipulation.

On *June* 16 I operated under chloroform, well managed by Dr. Davidson, the anæsthetist at St. George's Hospital. The patient was placed upon the side, with the head hanging a little over the edge of the table, and a strong gag was fixed in the mouth. With a soft Jacques catheter, I passed a loop of silk through the nostril, and by its means drew out through the

nose a doubled steel wire carefully prepared and tested. There was then a loop of steel wire in the pharynx, and its two ends projected through the right nostril. I then manipulated the loop of wire round the growth by a finger in the pharynx. This was not accomplished without some delay and much difficulty. At length, however, the wire 'sprang' over the fundus of the tumour to the somewhat constricted part above, and I drew it tight by traction through the nostril anteriorly.

A Jarvis snare *écraseur* was next adjusted to the wire and run down the nostril to the growth, and the process of severance proceeded with. The screw of the instrument was very slowly turned, and a full half-hour was taken in dividing the pedicle

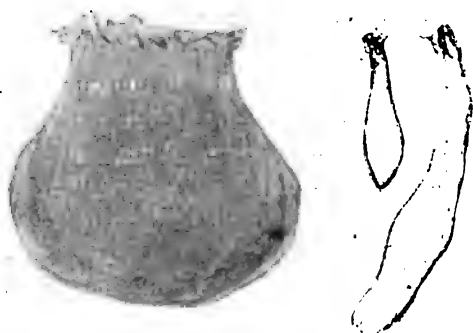


FIG. 2 (Case II.)

of the growth, which was as thick as a man's thumb. The severed growth fell into the pharynx, and as some bleeding took place it could not easily be found, but was at last detected and removed with the finger. The tumour was of the size and shape depicted in Fig. 2, and was very firm and tough. Smart hæmorrhage took place on its removal, but this was never alarming, and ceased spontaneously. The excellent position of the patient allowed all the blood to flow into the dependent cheek, and never caused us a moment's uneasiness. My colleague, Dr. Rolleston, examined the growth, and reported as follows:—

“ The tumour is covered by a somewhat columnar epithelium. Under the epithelium there was a fairly compact stratum of fibrous tissue, containing numerous well-formed blood-vessels.

Many of the arteries showed endarteritis obliterans; this was probably the result of inflammation extending to them from the exterior. Some of the arteries were completely occluded. The central part of the tumour was composed of myxomatous tissue. There was nothing to suggest sarcoma. The tumour is a myxo-fibroma."

The patient rapidly recovered from this operation, and was greatly relieved. On *October 17* I removed an ordinary myxomatous polypus from the right nostril, and on *October 18* I removed from the naso-pharynx a small fibrous growth about $\frac{1}{4}$ of an inch long, which grew and hung pendulous from the back of the naso-pharyngeal wall. This was cut away by raising the soft palate, previously well cocaineised, with a spatula, and burning off the little growth with the galvano-cautery.

On *November 1* I removed a fourth tumour from the right nostril; this was thin and elongated like a large worm. Its attachments were remarkably firm, so that when enclosed by the snare it was drawn away with difficulty. The nasal passages were now quite cleared, the patient could breathe easily, and his voice had recovered its natural tone. The last growth was entirely composed of loose fibrous tissue.

I have often expressed my belief that true fibrous polypus of the nose is a very exceptional disease. The majority of instances of this affection, if the growths were examined by a critical pathologist, would be found to be spindle-celled sarcoma. The growths removed in the two cases I have related are the nearest in character to true fibroma that I have as yet seen. It is commonly believed by surgeons that a growth which projects into the naso-pharynx is necessarily exceedingly vascular, and hence extensive operations have been done for the removal of these tumours which are really not needful. Thus I have seen the palate divided, and even a portion of the jaw removed, as a preliminary to the removal of a polypus the size of a pigeon's egg, which bled but little on severance. Very careful clinical distinctions should be drawn between rapidly growing sarcoma and the innocent tumours I have exemplified. Local multiplicity is always in favour of the more slowly growing and innocent forms of growth.

The methods of removal in the cases related are well worth consideration. The cutting away of the naso-pharyngeal polypi with the steel nail has been performed by other surgeons. It is easy of performance, and is especially applicable to elongated and slippery growths, round the base of which it would be difficult to guide a snare. Care must be taken that the severed tumours do not fall down the air-passages of the unconscious patient. The use of the wire *écraseur* is applicable to almost any naso-pharyngeal tumour which is at all pedunculated. If there is no trace of a pedicle, it is impossible to keep the wire loop close to the origin of the growth from the bones. Steel wire is by far the best, and the ends passed down the fine *écraseur*, if heated in the flame of a spirit-lamp, will be sufficiently softened to allow of bending and securing around a central catch. The "spring" of the wire loop in the pharynx will often carry it into position, when once it is insinuated over the fundus of the tumour, but the manipulation is often tedious and difficult. The more vascular the growth is estimated to be, the more slowly should the screw of the instrument be worked. An hour is not too much to spend in the process. Several spare wires should be at hand in case of breakage. The cold wire, if slowly worked, severs these growths very satisfactorily, and is less likely to get out of order than the *galvano-écraseur*.

The position of the patient on the side is in my estimation most important, as all blood or detached portions of growth pass into the dependent cheek away from the air-passages, and can be readily removed with a large sponge. Chloroform can be administered by a tube through the nose. Unless the services of a highly competent anæsthetist can be obtained, these operations had better not be attempted, for failure is certain to occur. In the case of courageous patients, by the aid of cocaine it would be possible to carry out such proceedings without general anæsthesia. In my own opinion, however, anæsthetics can in all these cases be safely given by competent persons.

A NOTE ON "INDIGESTION."

BY F. ORTON, M.D.,

Hornsey.

THAT ever-memorable opinion given by Betsy Prig concerning Mrs. Harris, "I don't believe there's no sich a person," was uttered in anger, yet not hastily, but with much deliberation. The complaint called "indigestion" is so made use of by its unhappy possessors that in exasperation but still most deliberately I venture to say, "There is no such disease." If some "Master in Israel" were to write to the *Times* and simply tell the world that henceforth no such disease will be recognised, but that any one who "suffers from indigestion," according to the common expression, is a "neurotic," and ought to be treated as such, he might probably get a hearing and do an infinity of good to his fellow-creatures.

The broad truth of such a statement will probably be admitted by any one who will but reflect that each of the various symptoms, say heartburn, flatulence, gastralgia, has its cause in a wrong condition of nerve-centres. If this be so, are we justified in supplying the dyspeptic with drugs for his stomach and other organs of digestion, thereby encouraging him to get those organs "on his mind," and ignoring the duty of pointing out to him the central cause of all his troubles? I find as a general practitioner that the cure for the dyspeptic is half accomplished by getting him to give up his long-cherished ideas about his digestive organs, and directing his attention to "himself" as an animal.

Let me give an illustration. Nearly four years ago a gentleman came to me whom I had known for twenty years by appearance and character, but not as a patient. The chief

points about his character I should put down thus: (1) earnest with regard both to religion and to business; (2) wealthy; and (3) rather proudly intellectual. A dangerous man, I need hardly say, to get his mind on his organs of digestion; but although he had been under the care of some of the heads of the profession for about two years, he continued to brood on his "dyspepsia." His age was about sixty-five, and having been accustomed to observe his well-preserved healthiness of look I was really shocked to see him a crumpled-up old-looking man, with the hand of death apparently upon him. He was about two stone below his proper weight; the numerous sensations and sufferings arising from his supposed indigestion were indescribable, and all the more pitiable because his nature was to be brave and unflinching. In some such period as eight months after I first saw him, he stopped me in the street, and with some glee told me he was eating late dinners, had gained a stone and a half in weight, and he looked a happy man; as further evidence of his recovery, his wife told me behind his back that he was a new man.

How was he helped out of his dreadful condition? Well, I should have liked to have kept him in bed for a month or two, but he would not agree to that. However, he was good enough to condescend to listen to my talk, in the course of some thirteen visits, and this was in substance what I said: "Remember that the character of John Bull has not been formed under Italian skies, nor for a life of ease, but by the trying effects of our climate, and by having many hard nuts to crack about things in general. So organs of digestion will never become hearty and strong by being given ease and rest, and by having things made too easy for them. Of all rusty cobwebby insides commend me to that of the reflective and insufficient eater, and of all good, wholesome, clean, sweet insides, commend me to that of the person who eats more than sufficient: it is the superfluity, the indigestible refuse, which keeps our digestive organs clean. The fashion of to-day is to say that we all eat too much, but this is entirely contrary to my experience. Of course we could not if we tried go back to the Englishman's idea of a roast goose—'too much for one and not enough for two.' Probably the neurotic of to-day has

good reason to blame the gross eating and hard drinking of ancestors for his inheritance; but when it becomes a matter of routine to say that salmon, pork, veal, pastry, cheese, nuts, are for most folks indigestible, surely there is something wrong in our physiology. Variety is charming, says the old copy-book; applied to the digestive organs, variety is strengthening, monotony is weakening. Eat anything and everything, and don't dare to say anything is indigestible, as Peter was told to think nothing common or unclean." With such like common-places, adapted to his special needs, I tried to help my friend to come down from his pedestal; and such like talk as distinguished from drug treatment I find helps most people who "suffer from indigestion," possibly because, in the days we live in, all diseases, even typhoid, seem to get coloured by "neurosis." To think of the fortunes that quacks are making out of this "Mrs. Harris," indigestion, is enough to make the judicious grieve.

Reviews.

Myxœdema, Cretinism and the Goitres: With some of their Relations. BY EDWARD T. BLAKE, M.D., M.R.C.S. Cr. 8vo. Pp. 89. Bristol: John Wright and Co. 1894.

THE subject of Myxœdema and some of the diseases more or less closely allied to it has engrossed for a considerable time the attention of the medical profession; and in the last few years we see in its treatment one of the most remarkable therapeutic advances of modern times. We are therefore glad to welcome such a work as this, dealing as it does with morbid processes which are by no means thoroughly understood.

The burden of the present book is to maintain the septic or infective nature of this group of diseases. However hypothetical many of the views enunciated may be, they are suggestive enough to guide our efforts along these lines in the observation and treatment of such cases in the future.

A large and increasing number of authorities at the present day seem inclined to think that exophthalmic goitre may be due to an infective agent acting on the thyroid gland, the nervous system, or both, and possibly elaborated in the patient's own economy: that it may be a toxic neuritis of the medulla and adjacent structures. This may or may not be the case, but it is rather the fashion at the present day to place many other diseases to the credit or discredit of an auto-intoxication, and such processes will evidently have much to answer for in the near or remote future. Of the wonderful results obtained in the treatment of Myxœdema by some of the various preparations of thyroid extract it is unnecessary to speak. The good effects are most remarkable and patent to all, and in the case of Cretinism improvement, if a little less striking, seems to be sufficiently obvious. In the case of the Goitres great care ought to be exercised in the administration of the remedy, for in some instances it certainly seems to do harm.

The book has been very well produced. A very full bibliography is appended, with an excellent list of authors and an

index of subjects, and the text is enriched with some good plates, making it a most useful guide to the study and observation of a remarkable group of diseases.

Directions for Laboratory Work in Bacteriology. By FREDK. G. NORBY, Sc.D., M.D., Junior Professor of Hygiene and Physiological Chemistry, Michigan. Michigan: George Wahr. 1894.

THIS book is designed for the use of the medical classes in the University of Michigan, and corresponds with the course of work carried on during a period of twelve weeks of daily afternoon work in the Hygienic Laboratory of that institution.

The guide is a good one, and should be of great use to students. Illustrations of the various bacteria and their mode of growth have been expressly omitted, and the book is interleaved with blank pages so that the student can sketch from observation the form of each organism and its peculiarities of growth in the colony and tube culture. This is quite the right way in which to teach a subject like bacteriology, and a student will find the drawings which he makes himself of more value to him than any number of more elaborate diagrams.

Very good instructions are given for all the different cultivating and staining processes and the various modifications of them; and an adequate account of the characteristics of all the well-known micro-organisms in clear and concise style is provided. A chapter on the testing of disinfectants is not the least useful part of the book.

This work ought to be of great benefit to all students working in a laboratory, as a supplement to the ordinary text-books on the subject. It will teach him to make observations; and—what is of even greater importance—it will encourage him, having made an observation, to take a note of it.

Edinburgh Hospital Reports. Edited by G. A. GIBSON, M.D., D.Sc.; C. W. CATHCART, M.A., M.B.; JOHN THOMSON, M.D., and D. BERRY HART, M.D. Cr. 8vo. Pp. 676, illustrated with coloured plates and engravings. Vol. II. Edinburgh and London: Young J. Pentland. 1894.

WE welcomed the appearance of the first volume of the *Edinburgh Hospital Reports*, as an evidence that the proud and noble traditions of past days were handed down in due succession, and that the highly esteemed Edinburgh Medical School of the present day was determined to keep abreast of the times alike in accurate observation and in scientific research. Much of the present volume—which we may at once say reflects the greatest credit on all concerned in its prepara-

tion—is occupied by contributions on surgical subjects. We will only cite two of the many interesting articles, the titles of which are certain to arrest professional attention: Hints and Suggestions in the Practice of Surgery, by Professor Annandale; and Practical Observations in Surgery, by Professor Chiene. The opening chapter is from the pen of Professor Gairdner: "The Edinburgh Royal Infirmary in the 'Fifties." This is to a large extent of an autobiographical character, and is written in a pleasing reminiscent vein throughout.

Dr. John Wyllie contributes a paper which cannot fail to be of the greatest interest alike to physicians and surgeons—"The Diagnostic Value of Patterns of Abdominal Tumidity and of Visible Peristaltic Spasm in Cases of Chronic Obstruction of the Bowels and Chronic Obstruction at the Pylorus." To ascertain the nature and seat of obstruction in abdominal cases places the medical attendant in a difficult and responsible position, and it is only by carefully and systematically studying such cases that we can hope to arrive at a correct diagnosis and employ suitable treatment. We must therefore always have some definite scheme to follow to enable us to tackle the various points in definite order. Another paper, which is worthy to be placed and read side by side with Dr. Wyllie's, is that by Dr. R. A. Fleming, who writes on the physical examination of the intestines by the combined method of percussion and auscultation.

Those who will take up this volume cannot lay it aside without having profited by the perusal of it.

Insanity Law for Medical Men. By CHARLES MERCIER, M.B.,
Lecturer on Neurology and Insanity, Westminster Hospital
Medical School. 8vo. Pp. 148. London: J. and A. Churchill.
1894.

THE author of this book need reproach himself with no such reflexion as that "a cobbler should stick to his last," for he has furnished us with a very useful guide in one of the most difficult and vexatious positions in which a medical man can possibly find himself placed.

It is perhaps unfortunate for one to be brought into contact with the law for any reason, but on the occasions when a medical man enters the courts—whether it is with regard to the management of insane patients, or to testamentary disposing or contracting capacity, or to the question of the responsibility of a criminal—in any case he has extremely difficult matters to settle, the easy solution of which is often greatly hampered by the different ways such questions are looked upon by members of the two professions who have to deal with them.

In the signing of certificates for the insane it often happens

that the general practitioner in charge of the case and some specialist in this particular branch of disease certify as to the patient's mental condition; as for the latter, possibly long practice enables him to get through the task with comparative ease, but for the former it is a very different matter. We are not surprised to hear of the unsatisfactory certificates which the author has so usefully quoted; indeed we feel inclined to endorse the decision formed by many experienced medical men, when they say they will have no hand in the preparation of these documents. To all who may be placed in this somewhat unenviable position, this book will be of the greatest possible value. It is practically impossible for any one to glean the information contained in this book from the ordinary treatises on Law.

We would especially commend to the notice of readers the author's chapter on Testamentary Capacity, with the different views on "delusion" and "insanity" which have from time to time been maintained by our great English lawyers. We are half inclined to agree with the opinion of one of our most eminent medical authorities that the word "delusion" is a very dangerous one to use in a Court of Law. Anyone who happens to be called as a witness on one of the three occasions on which a medical man may be brought into contact with the law—and it may happen to any one of us at any time—should go armed with this excellent guide. It must be an uncomfortable thing to be confronted with a hostile advocate if you are not sure of the rudiments of these questions. A short perusal of this concise guide to Lunacy Law for Medical Men will enable a witness to take his stand with perfect ease and composure. To use the somewhat trenchant but very precise language of one of our great teachers of forensic medicine, "it will be any odds that you know more medicine than your opposing barrister, and it will be about even betting that you know more law!"

A Treatise on Diseases of the Skin, with special reference to their Diagnosis and Treatment: including an analysis of 12,000 consecutive cases. By T. MCCALL ANDERSON, M.D., Professor of Clinical Medicine in the University of Glasgow. Second edition, revised and enlarged. Cr. 8vo. Pp. 761, with plates and numerous other illustrations. London: Charles Griffin and Co., Ltd. 1894.

IN reviewing the first edition of Professor McCall Anderson's *Treatise on Diseases of the Skin*, we pointed out that the work was written with special reference to diagnosis and treatment, and that in connexion with the former branch of the subject the book was rich in many excellent tabular statements

illustrating differential diagnosis. We are much pleased to welcome the appearance of a second edition of this work, which on its first appearance undoubtedly enriched our medical literature. The student of to-day is expected to be conversant with the ordinary maladies to which the skin is liable; and if he consults the pages of this manual he will find the principles of sound treatment clearly and concisely stated, the obsolete methods being carefully eschewed. The practitioner who learned his "skin diseases" years ago may on taking up Professor McCall Anderson's book be as dismayed at seeing how the science of dermatology has advanced as if he were to consult the pages of some of the recently published text-books on physiology. But if he masters the ground-work of the subject and carefully studies the various instructive tables already alluded to, he need have no misgivings on meeting with "a difficult case for diagnosis."

Clinic of the Month.

CLINICAL MEMORANDA.

BY JOHN HAROLD, M.R.C.S. ENG., L.R.C.P. LOND.

Medical Registrar, Charing Cross Hospital.

A CASE OF CERVICO-BRACHIAL HERPES, WITH TROPHIC ULCERATION, NEURALGIA, AND PARESIS.

A MAN, aged 48, by occupation a clerk, began to suffer from weakness of his right upper extremity in the autumn of 1890. In February 1891 he was attacked with severe brachial neuralgia of the same side associated with herpes. The eruption involved the right supra-scapular, deltoid, and infra-clavicular regions, and a few discrete spots occupied the upper arm, the lowest being situated at the bend of the elbow.

When first seen the affected limb had already ulcerated, particularly in front. It healed slowly and with abundant development of keloid. Meanwhile the patient suffered from great pain in the seat of the disease, and the whole surface of the right chest, both front and back, was in a state of extreme hyperæsthesia; the neuralgia and the local soreness of the surface rendered the condition of the patient very miserable, and he suffered also from extreme nervous depression.

Under the influence of rest and general tonic treatment the condition of the patient greatly improved; the sensory disturbances almost disappeared; voluntary power has been almost completely regained; and the keloid growth in the skin can now scarcely be recognised.



A Case of Cervico-Brachial Herpes, with trophic ulceration,
neuralgia, and paresis.

UNPLEASANT EFFECTS OF PHENACETIN.

A patient, aged 32, suffering from ovaritis and acute dysmenorrhœa, was ordered to take a cachet once to three times a day, as required, of the comparatively safe and popular phenacetin, containing ten grains of the drug. Finding relief from the drug, the patient repeated the dose at frequent intervals, taking five to eight cachets in the twenty-four hours. She suddenly complained of palpitation of the heart, her face was brilliantly scarlet, with the exception of the bridge of the nose and the upper lip, which were markedly pallid, the pulse was extremely rapid, and she also suffered from headache and shortness of breath. There was no urinary or gastric disturbance. The skin perspired. This case illustrates the importance of definitely emphasising the maximum dose to be resorted to—the medical attendant keeping in mind the possibility of idiosyncrasy, a condition which is met with when least expected, and moreover that the action of many of our newer therapeutical remedies is not infrequently attended by cutaneous manifestations. A dose which the physician may consider a moderate one may, owing to an idiosyncrasy on the part of the patient—especially a female—be attended by untoward effects. We cannot always foresee an idiosyncrasy, but the peculiarities of the patient ought to be ever before our mind.

A CASE OF GENERAL TUBERCULOSIS AND MENINGITIS.

A boy, aged 11, was admitted to Charing Cross Hospital on December 5, 1892, for loss of power in his right arm and for right facial paralysis. His family history was good. He had not suffered from any serious illness, but had a nasal discharge for about one year previous to admission. On November 28 it was noticed that the patient was speaking thickly, and that he mumbled his words. He gradually got worse until December 4, when saliva dribbled from the right angle of his mouth, and coincidentally with this the patient remarked that he could

not raise his right arm. On admission to hospital the lungs and heart were found to be healthy, temp. = 98.4° — 102.8° F.; the patient was dull; well-marked right facial paralysis; the right upper extremity much weaker in all respects than the left; no wasting of muscles; no loss of sensation. Pupils equal, and reacting to light and accommodation. Urine was non-albuminous and non-saccharine. No word-blindness, no word-deafness. Muddled words in speaking. Fundus oculi normal. Reflexes: slight over wrist, biceps, and triceps on right side. Knee jerks present on both sides. No ankle clonus. On December 7, in the afternoon, the patient had an attack of right facial twitching; the eyes were fixed; no affection of arms; patient did not answer when addressed. Temp. = 99.4° . No headache, no vomiting, no retraction of abdomen. The following three nights the temperature rose to 102° , pulse 80, regular and of good force; the bowels were constipated. On December 14 and following days vomiting occurred and the patient was drowsy; the pulse was less frequent, falling to 56; inner side of right disc very indistinct; both ears normal; the bowels were constipated; the abdomen was retracted; marked *tache cérébrale*. On December 24 there was a marked change in the condition of the patient. He was very irritable and querulous. Pupils unequal, the left pupil being the smaller. The patient lay in a flexed position. Two days later he constantly held his hands to the back of his head, as "the pain was there." He gradually lapsed into a comatose condition, and died.

The *post-mortem* examination revealed the following: On removing the calvarium pressure-signs were evident. The convolutions were flattened, their surface sticky. Well-marked tubercles were seen over the surface of the left hemisphere, being numerous about the region of the Sylvian fissure. At the base of the brain and about the cranial nerve roots there was considerable tuberculous deposit, with extensive matting about the vessels, and opacity of the membranes. The ventricles were little distended with cerebro-spinal fluid of normal appearance. Tracheal and bronchial glands enlarged, and many caseating. Abundant eruption of tubercle over both lungs, especially over the right; the tubercle seemed young everywhere. Spleen small, with small pieces of lymph on its surface;

no yellow tubercle. Plenty of tubercle on surface of liver. Tubercle over surface of kidney and even in the cortex on section. Bladder normal. No intestinal ulceration.

Obstruction of the Duodenum from Gall Stone.—

Schüle records the following case, which was tested in Erle's clinic at Heidelberg. The patient, a woman aged 35, was admitted in May of this year, complaining of "stomach spasms," vomiting (especially after food), loss of appetite, thirst, and constipation. There was no jaundice; nothing abnormal could be detected by palpation in the abdomen. The gall bladder was apparently normal, and the gastric contents contained free hydrochloric acid. Suitable diet and daily washing-out of the stomach were ordered as treatment. For the first nine days the patient did well. Then suddenly violent epigastric pain was complained of; sickness set in; and on the following day the patient became collapsed; the abdomen was unaltered. The vomiting continued, and on the third day a large quantity of bile, at first apparently old, but after free washing out fresh and green, was ejected. The collapsed state had now almost gone, and the patient presented all the symptoms of coma. There was no acetone, no albumen, no sugar in the urine, but a very small amount was passed. Injections of water into the bowel increased the quantity considerably, and the presence of bile in the contents of the stomach continued. On the fifth day the mental state was improved, and the patient answered questions. Next day the amount of bile washed out was small, and there was passed *per rectum* a cone-shaped gall stone, measuring one inch by three and a half, and weighing nearly 70 grains. On the following day the improvement continued, and the patient was discharged well after a month's stay in hospital. This case was regarded on admission to hospital as one of gastric trouble, and the onset of collapse suggested perforation of an ulcer. This was disproved by the course of the illness; and the occurrence of large quantities of bile in the stomach suggested an obstruction in the duodenum. The diagnosis was made of a stenosis of that part distal to the opening of the common bile duct. The cause remained very obscure until the passage of a gall stone cleared it up. The stone was not so large as to block the gut mechanically, but the reflex action set up by irritation would lead to contraction of the intestine upon the foreign body. In the matter of treatment Schüle refers to the good result which followed injection of water into the bowel.

This increased the amount of urine passed, and would tend to remove from the blood any absorbed morbid products. With reference to the diagnosis, Schüle considers the continuous flow of bile into the stomach as characteristic of stenosis of the duodenum. There must also be borne in mind the absence of faecal contents in the stomach—i.e. of ileus, as well as of increased peristalsis of the intestine. These two symptoms, the positive as well as the negative, show that the gut is blocked, and that the obstruction is on the one hand not in the lower portions of the bowel (ileum, colon), nor, on the other, on the proximal side of the opening of the common bile duct. (*Berlin. klin. Wochenschr.*, No. 45, 1894.)

Xanthoma Diabeticorum.—Dr. Allan Jamieson records an interesting case of xanthoma diabeticorum occurring in a man of 55. The chief peculiarities of the case were the following: First, the distribution: the eruption was not found on the elbows, knees, or buttocks, its favourite situations. The colour was unusual. In no recorded case has there been an entire absence of distinct yellow, when the eruption was coloured at all, from some of the papules: the nearest approach to it was the brownish yellow ring which margined several. Possibly if the patient had come under observation earlier, the coloration might have been different. The relationship to the glycosuria was indisputable. (*Brit. Journ. of Dermat.*, vol. vi. No. 10, p. 291, 1894.)

Gangrene of the whole of the Right Leg following Acute Rheumatism.—Dr. Spiridion Kanellis (Athens) reports the following case. E. K., aged 22, married, an hysterical and anæmic woman, who had suffered much from uterine hæmorrhage, was attacked with acute rheumatism. The ankles, knees, and hands were affected, and the temperature was high (40° C.). The acute attack lasted twenty-five days. On the twenty-sixth day there appeared as high as the upper third of the right leg a red blush all over the skin of the leg and foot; this gradually turned to a bluish colour, and was accompanied by great pain and coldness of the whole limb. The pain was agonizing in character, particularly at night. It is to be noted that at no time during the progress of the illness was there a suspicion of any murmur in the heart or of any disease of that organ. When a line of demarcation made its appearance, the leg was amputated and the patient recovered. (*Progrès Médical*, vol. xx. No. 30, p. 58, 1894.)

Double Orchitis with Suppuration.—M. Hornus relates the case of a soldier, aged 23, who had never had any venereal disease, and who was suddenly attacked with double

orchitis. He had not had any swelling or pain in the parotid region, but there was an epidemic of mumps in the barracks in which he lived. Under the usual antiphlogistic treatment the testicular swelling appeared to subside, but the fever always remained high—over 104°. Two days later acute peritonitis appeared, and carried off the patient in two days. On incising the tunica albuginea, a quantity of thick creamy pus was evacuated, which contained no traces of seminal tubes. There was infiltration of pus along the cord beyond the inguinal canal. The intestines and omentum were covered with purulent patches, and there was a small quantity of pus in the iliac fossæ. No lesion was found in any other abdominal organ, nor at the apex of the lungs. On account of the rarity of a fatal issue after metastatic orchitis, M. Hornus made a close investigation into the family history of the deceased, but without result. (*Lyon Médical*, p. 195, October 7, 1894.)

Angio-neurotic Œdema.—Drs. Ernest Wills and Dudley Cooper, of the Claybury Asylum, record five cases, all of which were free from organic disease which would have had any influence at all on the production of this condition. The occurrence of various transient vascular phenomena of the nature of flushings, erythema, urticaria, and the like in dyspeptic and hysterical patients has long been recognised, but œdema of probably purely nervous origin is comparatively rare. First among the exciting causes is psychical disturbance; other exciting causes are the onset of puberty, the climacteric, gastric irritation, and exhaustive nervous drain during the unstable time of adolescence. The skin-distribution of angio-neurotic œdema, like urticaria, and unlike zona and some forms of psoriasis, is irregular. Transient albuminuria is common to angio-neurotic œdema and urticaria. It would seem that in a certain class of cases an œdema occurs which is due to a direct influence of the nerves on the vessel-walls, causing an increased permeability. The sequence of events in its production is probably as follows: a local paralysis of the vaso-constrictors or a reflex stimulation of the vaso-dilators causes a dilatation of the vessels of the subcutaneous tissues, followed by a retardation and stasis of the blood. A serous or sanguineous exudation then occurs, producing an œdema; but this is not sufficiently acute or sufficiently localised to cause any lifting up of the epidermis as a whole, and the resulting condition may be fitly termed an *abortive urticaria*. (*Brain*, part lxiii., p. 383, 1894.)

Ocular Diphtheria and its Treatment.—C., aged 4, was brought before the Medical Society of Lyons by M. Frenkel with the following symptoms. The right eye was

inflamed. Chemosis was present and the conjunctiva much injected. At the edge of the cornea were three white patches. They were adherent, but could be stripped off. These membranes examined bacteriologically showed the presence of Löffler's bacillus in a state of pure cultivation. Inoculated on glycerine agar, colonies grew in some eighteen hours. There was albumen in the urine. No sign of diphtheria existed elsewhere. The condition completely disappeared under nitrate of silver. (*Lyon Médical*, No. 39, p. 152, 1894.)

Lichen Pilaris.—Dr. Allan Jamieson exhibited at a meeting of the Medico-Chirurgical Society of Edinburgh a case of lichen pilaris, *var. spinulosus*, in a healthy boy of six. The cause of this rare condition has not, so far, been discovered. It is an affection of the hair system, and is met with chiefly, but not exclusively, in childhood. The symmetry of its distribution would rather point to a trophic disturbance than to a parasitic origin. The treatment consists in washing with the resorcin salicylic soap, but cure has been obtained in other instances by the application of Vlemingx's solution. (*Edinburgh Medical Journal*, p. 345, October 1894.)

Multiple Cæsarean Sections.—M. Gueniot brought before the Academy of Medicine of Paris two women each of whom had had the operation of Cæsarean section twice performed upon her. The four children were living. The mothers were rachitic, and so were two of the children. In one case there was an interval of seventeen months between the two operations. M. Gueniot strongly condemned the ligature or removal of the tubes and appendages in these operations. (*Progrès Médical*, vol. xx. No. 27, p. 6, 1894.)

Extreme Cardiac Dislocation.—A fully described and clearly illustrated case of extreme left cardiac displacement occurring in a woman of forty-six years is recorded by Heyse. The apex beat was distinctly visible under the angle of the scapula, and the præcordial dulness could be made out to the left side posteriorly, immediately over the hepatic and splenic areas of dulness, whilst at its usual position in the left front there was pulmonary resonance. The ætiology of this extreme cardiac displacement is of special interest, which the author, after the exclusion of other forces, especially of old-standing pleuritic adhesion, refers to arrested development of the left lower pulmonary lobe. Analogous observations in literature, on which the author bases his opinions, make this very probable, and we must refer for an estimation of this relationship to the ample statements in the work itself. (*Centrblt. f. klin. Med.*, No. 5, 1894.)

Anterior Mediastinitis.—In a communication of a case bearing on this subject Mossons discusses the differential diagnosis between an adhesion of the pericardium and an anterior mediastinitis. A positive diagnosis of a pericardial adhesion he considers impossible, for similar symptoms may arise in anterior mediastinitis. In the case communicated the symptoms of mitral insufficiency existed in a boy of thirteen years, in addition to symptoms which were referred to adherent pericardium: pronounced systolic retractions in the cardiac area and invariableness of the zone of absolute heart dulness during the respiratory movements. The necropsy revealed the presence of anterior mediastinitis which was confined exclusively to the left side of the mediastinum. The pericardium itself was normal. (*Centralblt. f. innere Med.*, No. 5, 1894)

Extracts from British and Foreign Journals.

Laryngeal Symptoms in Tabes Dorsalis.—Dr. Moritz, in an interesting comment on Dr. Burger's monograph on "The Laryngeal Lesions of Locomotor Ataxy," says that from a study of the published literature on this subject it would appear that laryngeal paralysis as a sign of tabes dorsalis is one of the most frequent laryngeal symptoms met with. This opinion is however not held by Dr. Gowers. The occurrence of laryngeal paralysis in locomotor ataxy was probably often overlooked until attention was prominently called to it. This is accounted for by the fact that this form of paralysis, particularly when affecting only one side, may produce no marked symptoms. Abductor paralysis is the paralysis, *par excellence*, of locomotor ataxy. Yet, as is well known and conclusive, this is not a distinguishing feature of locomotor ataxy. According to Semon's law in all lesions affecting the central nuclei as well as the periphery of the spinal accessory or the recurrent laryngeal nerve, the crico-arytænoidei postici or abductor muscles are the first to become affected. Thus, Burger's contention that Semon's law is further exemplified by the laryngeal paralysis of locomotor ataxy is fully borne out by evidence. When the one posticus muscle only is paralysed, and the vocal cord is fixed in the median line by the contraction of the adductors, no symptoms are produced, the voice is scarcely affected, and the respiration not at all. The symptoms of paralysis of both abductor muscles are the same whether they accompany locomotor ataxy or are produced by other causes. During quiet respiration, even when the rima glottidis has become a mere chink, the dyspnœa becomes at once urgent, stridor occurring during sleep. Several of the cases of laryngeal paralysis suffer also from laryngeal crises. Attacks of laryngeal crisis proper ought to be distinguished from attacks of dyspnœa brought on by exertion, in cases suffering from paralysis of both abductors. Among manifestations due to changes in the vagus is the frequency of the pulse, attention to which was first drawn by Charcot. (*Medical Chronicle*, p. 147, No. 2, 1894.)

Chlorosis in Men.—Dr. C. F. Martin, of Montreal, records four cases of chlorosis in the male. Chlorosis is almost universally regarded as a disease which, if not peculiar to women, is at least of importance merely as it concerns the female sex. Thus Eichhorst, while denying that chlorosis is exclusively confined to women, and insisting on its occasional occurrence in men, considers that male chlorotics are always slender individuals, of feminine build, and frequently engaged in effeminate occupations, such as tailoring, etc. During the past few months, in Montreal, a few cases have been observed which have led to the conclusion that occasionally in men a condition is found very closely approximating to the chlorotic condition. A blood condition was obtained indicating a disease identical with chlorosis, and no other cause could be discovered with which to associate the anæmia. In no case was the diminution of the hæmoglobin extreme; yet it may be presumed that in many men, from some cause as yet not fully ascertained, an anæmia may be found the main characteristic of which is a diminution of the hæmoglobin. (*Brit. Med. Journ.*, p. 123, vol. ii. 1894.)

Diagnostic Value of Desquamation in Scarlatina.—Writing on scarlatina-like rashes in children, Dr. Ashby deals as follows with the question of the shedding of the cuticle as evidence of a previous attack of scarlet fever. The importance attaching to this process is vastly over-estimated. Certainly typical attacks of scarlet fever will be followed by "peeling" after the eruption stage is over, in a way seen after no other disease; but mild cases often do not desquamate at all, or differ in no way from other febrile attacks, such as influenza, pneumonia, or typhoid. After a few days or weeks in bed, any one's feet or hands may peel, especially the thick skin on the soles of the feet and palms of the hands. If the practitioner has had the opportunity of seeing the rash and watching the course of the attack, and has been unable to make a diagnosis, any subsequent desquamation that occurs is useless as a factor in the decision. In a case seen for the first time when desquamating, the value of the evidence afforded by the peeling would depend upon the history of sore throat and rash and the presence of some sequela, such as nephritis. The diagnosis of scarlet fever in a child is necessarily of the highest importance, not only to the individual but also to his friends; it is not our fault that it is sometimes impossible. We must not allow our hands to be forced, and thus possibly commit a serious error. Diagnosis in a difficult case may be out of the question, but in any case it can only be arrived at by collecting all the evidence available, weighing it carefully, and giving no one piece of

evidence a fictitious importance. (*Medical Chronicle*, p. 166, No. 3, 1894.)

Blennorrhagic Urethritis in Women.—Rollet lays stress on the necessity for treating in women not only the blennorrhagia affecting the genital passage, but also the inflammation of the urethra, especially as the condition, while tending to persist in the latter, may keep up a gonorrhœal metritis. The author distinguishes three clinical forms as affecting the urethra—the acute or painful, the chronic or painless, and the latent or insidious. Treatment is usually demanded during the first condition, whereas the chronic and latent varieties require inspection and careful examination respectively. As regards treatment, the internal administration of drugs can only be supplemental to external applications, and these are very numerous. Insufflation, direct application of solids, and suppositories have been recommended; but the author prefers injections, which in female subjects can be borne in greater concentration than in males. He employs a metallic sound with numerous perforations, using one to two litres of a solution of nitrate of silver, ichthyol, perchloride of mercury, or permanganate of potassium. In addition, the vagina should be plugged with an antiseptic tampon. (*Journal de Médecine de Paris*, p. 227, vol. i. 1894.)

The Heart in Typhoid Fever.—Dr. Huchard considers that the cardiac symptoms in typhoid fever may be due not only to myocarditis, but also to functional disturbances of the innervation of the heart. These symptoms disappear far too rapidly to be ascribed to myocarditis. Clinical experience has also shown that bradycardia, tachycardia, and all other deviations from the normal rhythm of the heart depend upon a functional disturbance of the pneumogastric nerves. The action of the microbial toxins may also be purely *functional*. (*Medical Week*, p. 369, vol. ii. No. 31, 1894.)

Sudden Death in Diphtheria.—The occurrence of sudden death in diphtheria at a comparatively early period in the disease has long been recognised, and usually referred to cardiac paralysis due to a parenchymatous degeneration of the heart muscle set up by the diphtherial poison. Aufrecht, while admitting that this explanation may suit many instances, says that, according to his experience, in very rapidly fatal cases of diphtheria the result is to be ascribed to a severe parenchymatous nephritis. And this he thinks true whether the disease occurs independently or is associated with scarlatina. He advises in all cases of diphtheria or even of follicular sore throat to examine the urine for albumen from the commencement. This measure should never be neglected in any case where

there is great restlessness with impaired consciousness and high pulse rate. If albumen is discovered under these circumstances, the patient ought to have administered large quantities of an alkaline saline water, in order to favour the urinary secretion by removing the casts blocking up Henle's loops. In this manner may be averted a dangerous complication which occurs early, and is to be dreaded on account of the diminution of urinary secretion occasioned by the renal affection, and the serious consequences to the organism which it leads to. Aufrecht quotes a case where he considered the adoption of this treatment was productive of the best results. (*Therapeutische Monatshefte*, No. 3, 1894.)

The Origin of Inflammations in the Urinary Tract.—Posner and Lewin contribute a note of some interest in connexion with this subject. Most purulent inflammations of the urinary organs are caused by micro-organisms introduced from without, in the majority of cases by means of a catheter. Instances, however, occur of severe cystitis and pyelonephritis where no such mode of infection is possible. The supposition has been hitherto that it might be derived from the intestinal canal, and it has been shown that the bacterium coli plays a considerable part. Experimentally a superficial injury to the large colon has led to cystitis, pointing to a direct passage of bacteria from the intestine to the bladder. The authors endeavoured to solve the question by closing up the anus and at the same time ligaturing the urethra. In all cases micro-organisms were found in the urine, while in stoppage of the urethra alone the secretion remained absolutely sterile. The organism found was almost always the same gas-forming bacillus belonging to the same group as the bacterium coli. The question then was whether the bacteria passed directly from the distended rectum into the bladder. The possibility of this occurring was present, as well-marked peritonitis has developed from an intestinal obstruction. Further investigation proved this event to be rare, for they found the bacterium coli not only within the bladder but in the kidneys as well, while the peritoneal fluid between the bladder and bowel was sterile. Posner and Lewin hold, therefore, that under favourable circumstances intestinal micro-organisms can be taken up by the blood and excreted through the kidneys—a process known to be present in certain infectious diseases. They proved this possibility by injecting cultures of the bacillus prodigiosus into the intestine and finding them in the bile, blood, kidneys, and urine. This would furnish an explanation of auto-infection from the intestinal canal showing itself not only as an inflammatory affection of the genito-urinary tract,

but also in other parts of the body. (*Berlin. klin. Wochenschr.*, No. 32, 1894.)

The Physiology of the Carbo-hydrates.—In the Croonian Lectures for 1894 Dr. Pavy dealt a severe blow at the glycogenic function of the liver. In his introduction, Dr. Pavy first discussed the physiology of the carbo-hydrates, the dehydration of carbo-hydrates by physiological action, the destination of starch in the plant, and the origin of proteids by incorporation of carbo-hydrates. He then proceeded to sketch the steps by which he had been led to the conclusion that a carbo-hydrate could be obtained from the cleavage of a proteid body by chemical means available in the laboratory. Finally, he arrived at a method of treating egg albumen which yielded a carbo-hydrate body readily soluble in water, yielding no coloration with iodine, and possessing no cupric-oxide reducing power. In his second lecture he commented on the glucoside constitution of proteid matter; showed that carbo-hydrate could also be cleaved off from the proteid by ferment action; and discussed the part played by the proteids in nutrition, and the conversion of carbo-hydrates into fat. The conclusions reached so far were to be summed up in the following propositions: (1) Not only can carbo-hydrate matter be hydrated by ferment and chemical action, but when in these conditions of increased hydration it can be transmuted by dehydration under the influence of protoplasmic action to substances having more complex molecules—amyloses; (2) in both the vegetable and animal kingdom carbo-hydrates take part in the synthesis of proteids; and (3) carbo-hydrates are, under the influence of protoplasmic action, transformed into fat. The acceptance of this position involved the abandonment of the glycogenic doctrine. This doctrine taught that carbo-hydrate matter rendered soluble by hydration in the alimentary canal was carried by the portal vein to the liver, there to be in part stored, and eventually permitted to escape from the liver into the hepatic veins, from which it reached the general circulation, and through it the systemic capillaries, for disposal in the tissues in some unknown manner. The theory was supported by the following contentions: (1) that the liver is more saccharine than other organs; (2) that the blood leaving it contains more sugar than the portal veins; (3) that the blood on the venous side of the systemic capillaries contains less sugar than on the arterial side. All these statements had now been shown to be incorrect. It might indeed be affirmed not only that there was no support for the glycogenic theory, but that it was incompatible with the observed order of things in the animal economy. (*Brit. Med. Journ.* pp. 1349–50 and 1404–6, vol. i. 1894.)

The Natural History of Beri-beri.—An editorial article contains the following remarks on beri-beri. Four types of the disease are described: (1) an incompletely developed or *rudimentary* form; (2) an *atrophic* form; (3) a *dropsical* or dropsical and atrophic form; and (4) an *acute pernicious* or cardiac form. (1) The *rudimentary* form may set in insidiously with or without prodromes, including general malaise, fatigue, depression, and headache. Frequently catarrhal symptoms are present, soon followed by weakness in the lower extremities, with numbness, and redness, and indications of constitutional disturbance. These symptoms may persist for days or weeks, even for months, convalescence and recovery ensuing gradually. (2) In the *atrophic* form the onset of the symptoms may be insidious or abrupt. These consist distinctively in loss of power and wasting of the affected muscles. Improvement takes place slowly, months often elapsing before motility is restored. (3) The *dropsical* form is characterised by the occurrence of general and widely spread anasarca, involving the serous cavities as well as the subcutaneous tissues. Recovery is gradual. (4) The *acute pernicious* form attacks preferably young, robust persons, and is characterised by the occurrence of symptoms of acute cardiac insufficiency. These may set in suddenly in the course of an attack of milder type, although as a rule the course of the disease is from the outset more acute. The most conspicuous and most constant symptom of beri-beri is the impairment of motion. This begins in the lower extremities, and is of ascending type and of variable degree. Sometimes one side of the body is more affected than the other. In some cases the diaphragm suffers; sometimes the cranial nerves, particularly the pneumogastric. The paralysis is, as a rule, flaccid; exceptionally it is spastic. The irritability of the affected muscles is diminished with both forms of electricity, faradic contractility of both muscle and nerve being lost more rapidly than galvanic irritability. Mechanical irritability of the muscles is also diminished. The parietic muscles waste. Next in importance to these motor manifestations are the sensory symptoms. Cutaneous anæsthesia or hypæsthesia is almost constantly present. It is of variable distribution, and is proportionate to the severity of the attack, or of the remaining symptoms. Paræsthesiæ are common and varied, as hyperæsthesia is uncommon. There is little pain, spontaneous or induced. The cutaneous reflexes are, as a rule, preserved, while the knee-jerks are often wanting. Cerebral symptoms are not pronounced. Circulatory disturbances form an important part of the clinical picture of beri-beri. Among the most common of these are palpitation of the heart, oppression and dyspnœa, epigastric pulsation, precordial distress, accelera-

tion of pulse, diminution of arterial tension, cardiac hypertrophy and dilatation, and functional cardiac murmurs. The urine is, as a rule, diminished in amount, and in some cases contains albumen. There are, further, symptoms of varying intensity of gastric and pulmonary derangement. The lungs sometimes undergo a peculiar distension. The blood shows no distinctive alteration. The usual termination of the disease is in recovery. In a proportion of cases this is not perfect; obstinate and incapacitating sequelæ sometimes persist. The most important of these is muscular weakness; others are defective sensibility and circulatory disturbances. The mortality varies with time and place, though not always inconsiderable. In acute cases death usually results from heart-failure or from paralysis of the diaphragm. In chronic cases, and particularly when complicated with other diseases, death may take place from general exhaustion. The essential lesions consist in a degenerative inflammation of the peripheral nerves, with a corresponding change in the muscles, and parenchymatous changes in the viscera. In some cases degeneration of the ganglion-cells of the anterior horns of the spinal cord has been observed. The spleen is moderately enlarged in acute cases. Various micro-organisms have been found by different observers in the blood and organs of cases of berî-beri, but no micro-organism has been conclusively demonstrated to possess specific properties. The prognosis is uncertain, and must be based upon the circulatory condition. The prophylaxis is hygienic, and intimately related to disinfection, drainage, and water supply. The treatment is climatic and symptomatic. Elevated residence is to be preferred. A sea voyage may be curative. Laxatives have always been looked upon as serviceable. In acute cases salicylic acid and sodium salicylate have been strongly recommended. Digitalis is an indispensable remedy. In acute cases, with cardiac insufficiency, venesection may be resorted to. In chronic cases, arsenic, iron, and quinine are indicated. In atrophic cases, subcutaneous injections of strychnine are useful, and the pareses may be materially improved by electricity. (*Medical News*, p. 17, vol. ii. 1894.)

The Prevention of Insanity.—At the annual meeting of the British Medical Association, Dr. G. Fielding Blandford delivered an address in which he said that the latest examination of statistics points rather to a slight diminution than to an increase of the numbers of the insane; but the nervous disorders, taken together with the undoubted and registered insanity, point to the fact that in the evolution of our *race* the complex brain is becoming more and more unstable. He quoted from the Milroy Lectures of Dr. Haycraft on Darwinism

and Race Progress, in which Dr. Haycraft explains the part that natural selection plays in preserving the race; that preventive medicine is trying a unique experiment; that the effect—race decay—is already discernible; and that as we are attempting to do away with the part that natural selection plays in preserving the race, we must supply the selective influence by the selection of human forethought. Dr. Blandford said he has long been of opinion that insanity is to be prevented chiefly by limiting the propagation through the union of affected persons. He is inclined to believe that the taint is transmitted through the female rather than the male. A child inherits partly from his father and mother, and partly from more remote ancestors. We know that the children of an insane parent are not all insane. We cannot forbid them all to marry; but it is most important that they marry partners who are themselves free from all nervous disorders. We have only public opinion to call to our aid, and at the present time the only thought which the public gives to the subject is how it may best conceal the fact of insanity occurring in a family. The education of public opinion rests mainly with our profession. If we oppose the marriages of the unfit, and give our reasons, they will in time prove useful. Suppose that we are consulted about the marriage of a child of a family in which insanity has manifested itself. There are various questions to be considered. First, Is the individual himself or herself healthy and fit to marry, free from at any rate any outward and visible signs of neurotic disorder, free from any tendency to phthisis, free from anything like weakness or imbecility, from a tendency to drink, from strong emotional excitement, religious or otherwise? Secondly, If there has been insanity in the family, in how many members has it shown itself, and in how many generations? If it has occurred in one of the parents only, what was the age of the parent at the time of its appearance? Was it prior to the birth of the child or subsequent? Was it an insanity which the parent had inherited, or was it acquired at a more advanced period of life? If all these questions can be answered favourably, above all if the individual himself or herself appears to be sound in nerve and limb, we may sanction his or her union. But what if the other partner of such union is in the same category, and comes of a family tainted with insanity? Even supposing that the conditions are as favourable as they can be, yet the risk is too great. The conjunction of two such persons is eminently hazardous both to the offspring and themselves. With reference to the marriage of a man or woman who has had an attack of insanity, he remarked that such a one had better remain single; and if the husband or wife have attacks after they are married,

they should have no more children. He then considered the question as to what can be done to prevent insanity developing in children who come of an insane stock. He said the nutrition of such infants should be carefully attended to. An emotional irritable mother should not suckle her child. Such a child must have regular hours for sleep by day and night; convulsions must be guarded against, as also must all forms of fright. Children must not be taught the habit of self-abuse by nurses or other children. Examinations at school must be avoided, such children should be brought up total abstainers. In after life a post in an office with regular hours, little responsibility, a fixed income, a pension, and long holiday, is the one for men who come of such families. The daughters, neurotic girls, should not choose a nurse's life; they had better be teachers of the young than nurses of the sick. (*Brit. Med. Journ.* vol. ii. p. 255, 1894.)

Duodenal Ulceration in Bright's Disease.—Drs. Perry and Shaw, in an article on the diseases of the duodenum, state that out of seventy cases in which ulceration was found in twelve there was either interstitial or tubal nephritis or both combined. This implies a causal relationship between the two conditions. The ulcers are described as shallow and very recent, follicular, contracting, punched out, chronic, exposing the pancreas with subsequent hæmorrhage, and perforating. They are sometimes single, sometimes multiple; in one case associated with an ulcer of the pylorus, in another case with hæmorrhagic erosions of the stomach. With one exception the situation of the ulcer whenever mentioned is stated to have been above the biliary papilla. In one patient ulcerated areas such as are common in Bright's disease were found scattered throughout the large and small intestines; and the lower half of the duodenum was similarly affected. This case showed that the ulcerative enterocolitis of Bright's disease might extend as high as the duodenum. In all the other cases there was a marked absence of enteritis in the lower part of the intestine and the conditions found in the duodenum did not materially differ from those found in cases where there was no Bright's disease. (*Guy's Hospital Reports*, 1894.)

The Transitory Blindness of Uræmia.—Rothmann contributes some observations on this subject, and in summing up his conclusions says that the blindness occurring in patients suffering from grave forms of nephritis, with or without other uræmic symptoms, is of a peripheral character occasioned by œdema of the sheath of the optic nerve. The same explanation holds good for amaurosis in severe hæmorrhage. The pupil reaction may be retained, diminished, or lost altogether without

rejecting the view of compression of the optic nerve. When the pupil reaction is retained it is a favourable symptom as far as prognosis is concerned, and a return of sight may be anticipated. Even abeyance of pupil reflex does not indicate an absolutely unfavourable view. If the pressure of the exudation is too great, permanent blindness may result, caused by degeneration of the optic nerve fibres. When the blindness is transitory, the optic nerve becomes quite normal after the return of the power of sight, or at most degenerated only in its marginal portion. (*Berlin. klin. Wochenschr.*, No. 30, 1894.)

A New Enteric Pill.—Dr. Louis Waldstein, following on the lines of Unna in his endeavour to provide a medicine which taken by the mouth should reach the upper part of the intestine without being dissolved in the mouth or stomach, recommends a mixture of shellac and salol dissolved in alcohol. This mixture can be spread over a pill in a very thin layer, and remains unchanged and perfect, without becoming brittle, for an indefinite time. He has found by experiment both clinically and in the laboratory that such a pill passes the stomach unaltered, but that it is speedily dissolved afterwards as the contents of the pill could be traced in the urine and fæces. He thinks that this line of treatment might be adopted with advantage in cases of typhoid fever, in anæmic girls with constipation, and in diabetes presumably dependent upon pancreatic disorder. (*New York Med. Journ.* vol. lxx., No. 10, p. 308, 1894.)

The Value of Massage.—In an introduction to a discussion on massage—surgical, medical, and gynecological—before the Edinburgh Medico-Chirurgical Society, Dr. J. Halliday Croom said that in regard to surgical massage he was not in a position to offer any opinion, but as to its efficacy in loosening stiffened joints, and in causing absorption of chronic inflammatory deposits in sprains, in neuralgia and rheumatism, as well as in spinal weakness and various other affections of ligaments and joints, he thought there could be but one opinion as to its value and importance. There are four systems: (1) Simple massage, which consists in the systematic stimulation of individual groups of muscles by various movements and manipulations, especially effleurage, pétrissage, friction, and tapotement. (2) The so-called “Weir Mitchell Treatment,” which is really a combination of seclusion, rest, electricity, overfeeding, and massage; or, as Playfair says, “a vicarious way of giving exercise to patients who cannot take it themselves.” (3) The Swedish system of medical gymnastics embraces a great variety of manipulations and exercises, and is used in a large number of chronic diseases. (4) The Zander system is not, strictly speaking, a form of massage. Certain diseases are cured by

mechanical exercises; machines, some of which are most elaborately constructed, being employed for the purpose. As to its physiological effects, systematic massage for a week considerably improves the appetite, and increases the weight, and the frequency and depth of respiration. The pulse becomes fuller, and, as a rule, slower, while the body temperature first falls and then rises again to normal. It promotes absorption by the lymphatics, and increases the contractility of the muscles on electrical stimulation. He said he was conversant with medical massage only in three classes of cases—constipation, gall-stones, and neurasthenia. In obstinate cases of constipation, he said, he knows no better mode of treatment. On two occasions he has satisfied himself that biliary calculi have been got rid of in this way, but he points out the risk of peritonitis. In neurasthenic cases he confesses to disappointment. As regards massage in gynecology, he says he cannot sanction internal pelvic massage, whether rectal or vaginal, but from external massage of the abdomen, combined with other adjuncts, such as hot irrigation, he has seen the best effects. (*Edinburgh Med. Journ.*, p. 193, September 1894.)

The Bismuth Treatment of Gastric Ulcer.—Savelieff contributes to the discussion of this question a paper in which, after reviewing the opinions of many authorities, he gives the results of trials of his own. All the patients were treated after the method recommended by Fleiner. They took in a fasting state about two drachms and a half of bismuth suspended in about six ounces of warm water, and were instructed to wash down any portion that may have remained in the upper passages. They then lay down in bed with the pelvis raised, and remained so for an hour. As in the greater majority of cases the seat of the ulcer is on the posterior wall of the stomach, or small curvature, or near the pylorus, it is probable that the remedy would fall on the affected spot, especially if the pelvis is slightly tilted up. Savelieff believes with Fleiner that the position of the patient is of great importance in the treatment. He does not, however, go so far as asserting that the localisation of the ulcer may be made by altering the position of the patient and the presence of certain tender spots. It is useful to introduce the bismuth by means of the tube after washing out the stomach, but this procedure is not necessary unless there is decomposition of the gastric contents. Fleiner recommends that the tube should be retained for a little time after the patient assumes the horizontal position, so as to allow of the water being drawn off after the bismuth has settled. This is, however, according to Savelieff, quite unnecessary, and it causes much discomfort to the patient. About six ounces of

bismuth was used by each patient altogether, and a definite effect was achieved. The diet was restricted to milk, stale bread, biscuit, butter, and thick soups of rice and sago. Once a day a larger quantity of raw minced meat or ham was permitted with a soft egg occasionally. Bodily movement was restricted, and rest was enjoined after each meal. It was also ordered that food should be taken every two hours. Most of the patients carried on their ordinary duties; and after the bismuth was stopped they went on ordinary diet, avoiding however certain foods. The results of the bismuth treatment were regarded as excellent. In all the cases, with the exception of one of cancer of the stomach, there was complete disappearance of all troublesome symptoms during the treatment. The drug did not produce constipation, but on the contrary relieved it where it existed before. Relapses were not prevented, and for recent cases prolonged rest with milk diet was advisable. (*Therapeutische Monatshefte*, No. 10, 1894.)

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Department of Public Health.

NOTE ON THE NEEDS OF BAKEHOUSES IN THE METROPOLIS AND LARGE TOWNS.

WE would briefly recur to the paper which appeared in our last issue on the subject of the sanitary condition of metropolitan bakehouses, by Mr. Shirley Murphy. No one can read that paper without a conviction that the occupation of baking in the metropolis is very largely carried on under conditions which call for improvement and remedy; and that which applies to London applies in many particulars to the bakehouses in most of our large towns, and in some smaller communities. In brief, our bread supplies are, in a large number of cases, prepared under circumstances that are unhealthy for the workers, and that involve a nuisance by reason of inadequate light, faulty ventilation, and structural conditions that lead to uncleanness and to impurity of air.

We entirely concur with Mr. Murphy in the view that the raising of the standard by which bakehouses should be judged is necessary, and that the erection of bakehouses of greater hygienic excellence is needed to this end. Such bakehouses would serve indirectly to improve the standard of existing ones. But more than this is needed. Bakehouses might well be made subject to certain definite regulations. These regulations should be twofold: first, bakehouses should be licensed, and a condition of licence should be such structural alterations as would secure the various points as to light, ventilation, purity of air, &c., to which Mr. Murphy adverts. But this step will probably have to be, in the first instance, limited in its scope. All new bakehouses might as a beginning be subject to a licence, and the

extension of the licence system to other already existing bakehouses might at the same time be provided for whenever such extension is deemed expedient by the body granting the licence or by the Local Government Board. The granting of a licence to new bakehouses would be subject to the existence of certain structural conditions, especially such as would ensure reasonable light, ventilation, purity of air, and cleanliness. Conditions of this sort are already required as the necessary antecedents to a licence for slaughter-houses, and they would in themselves at once tend to raise the standard by which bakehouses ought to be judged.

Secondly, bakehouses should be placed under bye-laws as to their management, the maintenance of cleanliness, &c. Such bye-laws might, in the first instance, be made applicable only to newly established bakehouses, and to bakehouses in which there is a change of occupation. Then again, the sections of the Act of 1883, which bring new bakehouses under certain restrictions as to drainage, water supply, closet accommodation, &c., might be made to apply to all existing bakehouses after the lapse of a reasonable period of grace, during which a master-baker could himself effect the needed changes, or decide on moving to other premises. This step would probably in a short time tend to get rid of some of the worst existing establishments.

Action on the above lines would at once inaugurate a movement in the direction of improved bakeries; and such improvement is called for both in the interests of the bakers and in the interests of the public whose food-supplies should be prepared under wholesome conditions. Incidentally it would gradually abolish those of the underground bakehouses which are unwholesome and which do not admit of a satisfactory remedy, and this would in itself be a great gain; for underground bakehouses which are so situated that they cannot be adequately lighted or ventilated ought to be regarded as places where no occupation of the sort in question should be carried on. But we must, at the same time, express our entire concurrence in Mr. Murphy's opinion that bakehouses ought not to be condemned for the sole reason that they are situated underground. Indeed, we cannot do otherwise than

recall in this connexion the fact that in by far the majority of dwellings and establishments in London, all food supplies are prepared in underground apartments, and that this practice applies not only to supplies which do not pass, as bread does, through any such test as baking, but also to articles which are consumed without any exposure whatever to heat. We are not assuming that the process of baking is capable of destroying micro-organisms which are injurious to health. It is evident that all organic life is not so destroyed ; but it yet remains to be shown that bread contains pathogenic organisms, and that these have escaped destruction by the process of baking. Much therefore as we could wish to see all bakehouses and all domestic and hotel kitchens elsewhere than underground, we feel certain that any attempt to enforce this by legislation would go far to defeat the object which public health officials have in view—namely, the abolition of bakehouses that are either unhealthy or a nuisance, and a general elevation of the standard by which bakehouses should be judged for the purposes of sanitary administration.

We would, indeed, go further, and say that, just as there are excellent underground kitchens abutting on areas having through-ventilation, and provided with a reasonable amount of light, so also are there bakehouses where bread and confectionery are prepared, and which, though underground, ought not to be objected to on public health grounds. One of the great means for securing improvement in our urban bakehouses will probably be the gradual introduction of machinery in the process of manufacture both of bread and confectionery. No influence will tend more than this to abolish those among the small bakehouses which are now both structurally and otherwise unfit for the purposes which they attempt to serve.

CHOLERA AND PREVENTIVE INOCULATION.¹

BY W. J. SIMPSON, M.D.,

Health Officer, Calcutta.

WITH reference to the question of the Honourable Soorendro Nath Banerjee whether "the attention of the executive has been drawn to the statements which have appeared in the newspapers regarding the alleged failure of the Haffkine system," I have the honour to communicate all the observations which have been made in different localities in India on the effect of the anti-choleraic inoculations since my note on the subject to the municipality in May of this year. The localities comprise Cawnpore, Gya, Dinapore, Lucknow, and Calcutta.

At Cawnpore last year a small number of persons were inoculated, of whom 80 were in the Munster Regiment. During the severe epidemic of this year cholera attacked the regiment, its strength being at the time 797 not inoculated and 75 inoculated. Nineteen cases with 15 deaths occurred among the not inoculated men, none of the inoculated being affected.

In the Gya district also cholera was prevalent in a severe form, and affected the Gya jail on July 9 of this year, causing by the 18th July 6 cases and 5 deaths. On the 18th and the following day 215 prisoners were inoculated; during the period of the outbreak the average number of the inoculated present were 207, against 202 not inoculated. Surgeon-Major Macrae, the superintendent of the jail, who has given the details of this epidemic, states in his account that the inoculations "being purely voluntary, no selection of prisoners was possible, but all classes of the jail were represented; male and female, old and young, habituals and less frequent offenders, strong and weakly, convalescent, and even hospital patients sent their representatives; no difference of any kind was made between inoculated and non-inoculated; they were under absolutely identical conditions as regards food, water, accommodation, &c.—in short, in every possible respect."

¹ Being a communication addressed to the Chairman of the Calcutta Corporation, October 1, 1894.

In this instance the comparison was made between the inoculated and not inoculated, under conditions which render the observations extremely valuable. In making this comparison it will be remembered that a period of about ten days has been claimed as necessary for securing the full effect of the vaccines, the first inoculation taking about five days to act, and the second inoculation, the more important of the two, a similar period.

The results summarised were as follows :—

	Not inoculated.		Inoculated.	
	Cases.	Deaths.	Cases.	Deaths.
During first 5 days after first inoculation ...	7	5	5	4
During 3 days after second inoculation ...	5	3	3	1
After 8 days from first inoculation ...	8	2	...	...
	20	10	8	5

From the table it will be seen that a gradually increasing difference was produced, even during the period necessary to complete the treatment, 8 cases and 5 deaths occurring among the inoculated, against 12 cases and 8 deaths among the not inoculated, and that after this period 8 cases and 2 deaths occurred among the not inoculated, and no cases or deaths among the inoculated. Dr. Macrae, referring to these figures, remarks that "further observations are necessary to prove whether the inoculations as now practised will prove of lasting benefit; the results obtained in Gya seem to me to justify the conclusion that their temporary beneficial effect is undoubted. I think there is every reason to believe that better results would have been obtained had the inoculations been performed at an earlier period, instead of during the epidemic." In connexion with this opinion expressed by Dr. Macrae, I may inform the Commissioners that endeavours are now being made to improve the vaccines by the introduction of modifications in their preparation, which have for their object the shortening of the period that has to elapse before the vaccines exercise their full protective power.

On July 17, at the same time as cholera was prevalent in the

Gya jail, an outbreak of cholera occurred in the Manchester Regiment stationed at Dinapore. Inoculations were performed on August 4th and 5th on 193 men. On the 6th, 9th, and 10th, six cases occurred among the not inoculated. Later on 387 other men of the regiment were inoculated. No other cases of cholera occurred in the regiment.

The observation which has attracted general notice from the apparent failure of the system was at Lucknow, where inoculations were performed in May 1893, in the East Lancashire, Royal Irish, 16th Lancers, and general population in the Civil lines. In 1894 cholera appeared among the native population of Lucknow in the form of an epidemic distinguished by its extreme virulence, patients succumbing in the course of a few hours. It is stated that the epidemic was of a most malignant type. In the latter part of July it entered the cantonments and attacked the East Lancashire, almost exclusively confining its ravages to that regiment. In the East Lancashire 185 men were inoculated in May 1893. From the statistical returns obtained from the Military authorities at Lucknow, it appears that, at the time of the outbreak in July 1894, the strength of the men, including those in hospital, was 773, and of these 133 were inoculated, as recorded in the inoculation registers, and 640 were not inoculated.

The following table shows the total number of attacks and deaths in not inoculated and inoculated :—

	No. of men present.	No. of attacks.	Percentage of strength.	No. of deaths.	Percentage of strength.
Not inoculated ...	640	120	18·75	79	12·34
Inoculated	133	18	13·53	13	9·77

In the record placed at our disposal in Lucknow, Surgeon-Major Milward, who was ordered by the authorities to attend the affected regiment, and who collected complete details regarding the inoculated and not inoculated, presents the incidence of the epidemic in two groups, one relating to the cantonment, the other to the camp. Following Dr. Milward's mode of grouping of the observations, it appears that the epidemic in the camp caused 86 cases and 51 deaths among 307 not inoculated, and

13 cases and 9 deaths among 67 inoculated; while that in the cantonment caused 34 cases and 28 deaths among 333 not inoculated, and 5 cases and 4 deaths among 66 inoculated. The epidemic in the camp thus appears to have been twice as severe as in the cantonment, but the result as regards the inoculations is much the same, as is to be seen by the following tables:—

CANTONMENTS.

Not inoculated	had 10·21 per cent. of cases and 8·41 per cent. of deaths.
Inoculated	7·57 „ „ 6·06 „ „

CAMP.

Not inoculated	had 28·10 per cent. of cases and 16·61 per cent. of deaths.
Inoculated	19·40 „ „ 13·43 „ „

Both observations having been carried out under different conditions, the similarity of the result enhances the significance of the figures, as it lessens the possibility of their being in both cases accidental. It will be seen from the figures that, though the effect in the instance of the Lucknow epidemic was smaller than in all others and of itself much below what is aimed at, still they represent a tendency to lower the number of cases as well as the number of deaths.

The small effect produced in Lucknow was probably due to the two following circumstances:—

First of all the vaccines used in Lucknow were much weaker than the virus of the epidemic. It has been previously stated that the epidemic among the civil population in Lucknow was of a most malignant type; that in the East Lancashire was also of a similar character; senior medical officers of long experience in the country stating that such a virulent cholera had not been seen by them for very many years past.

With reference to the strength of the vaccine, Lucknow having been one of the first places in which the inoculations were carried out on an extensive scale, they were done with great caution, and only small doses of a vaccine relatively weak were given, the doses being between one third and a half of those now administered. Judging from the symptoms recorded in the registers, the effect produced by these small doses was only slight; for instance, sixty out of 185 had no reaction after

the inoculation, seventy had slight fever, and only two marked fever. Secondly, there is the possibility of the immunity of the inoculated men having partially disappeared. It is known that immunity varies in the length of time that it lasts, and it is possible in cholera inoculations, especially when done with weak vaccines, as in the case of Lucknow, the immunity may be sufficient to protect from a prevailing epidemic or an epidemic of the first year, and yet have only slight protective influence later on. But this protective influence, as has been shown, manifested itself in Lucknow after a period of between fourteen and fifteen months.

The Lucknow epidemic has shown that the degree of intensity at which the vaccines were maintained, and the doses given at that time, were not sufficient to counteract a virus so virulent as that which attacked the Lancashire Regiment. The epidemic has taught the necessity of using a vaccine of higher protective power. This can only be obtained by a special laboratory, of which the Calcutta one is the first in India.

Two protective measures were put to the test at Lucknow in this epidemic: one was the inoculation, the other was the movement into camp. A comparison of both measures is in favour of the inoculation, for it appears that the movement into camp was not attended by a reduction of deaths, but actually by a large increase over that which occurred in the cantonment; whereas the inoculation was attended by a lessening of the cases and deaths of the inoculated in contrast to those not inoculated.

Hitherto the movement into camp has been considered the best method of combating an epidemic in a body of men. The conditions during the epidemic in Lucknow districts were such that this measure not only failed but proved disastrous. The moving into camp, notwithstanding this example, is all the same an excellent measure of defence, and would with reason be adopted in every outbreak in spite of any exceptional results. But even under these exceptional conditions the inoculations which were performed between fourteen and fifteen months previously, under the disadvantages previously stated, preserved a favourable tendency.

In Calcutta the following observations have been made :—

(1) In Golam Rohomon's house at Joratolla Bustee, Ward 21, five members were in March last inoculated out of a family consisting of eleven. One of the *uninoculated* six was affected with and died of cholera on June 17, 1894.

(2) In Issoo Mistree's house at Beg Bagan Bustee, Ward 21, four members were in March last inoculated out of a family of six. One of the *uninoculated* two was attacked by cholera and died on June 22, 1894.

(3) In Shaik Hingoo's house at Beg Bagan Bustee, Ward 21, six members were on June 17 inoculated out of a family consisting of nine. One of the *uninoculated* three was attacked by cholera on June 22, 1894. This case ended in recovery.

(4) In Gonessee Bewah's house at 16 Jorabagan-street, four members out of a family consisting of five were inoculated in May last. The only member that was *not inoculated* was affected with and died of cholera on July 11, 1894.

(5) In Jodunath Chakravatty's house at 155 Upper Chitpore-road Bustee, four members out of a family consisting of eleven were inoculated on August 11, 1894. One out of the *not inoculated* seven was attacked by cholera on August 13. This case has now ended in recovery.

(6) In H. L. Mukerjee's cooly *dépôt* at 2 Chattoo Baboo's-lane, Ward 19, twenty-five persons inoculated out of fifty-eight. One out of the *not inoculated* thirty-three was attacked by cholera on August 13, and died on August 15.

(7) In Narain Mistree's house at 155 Upper Chitpore-road Bustee, three members out of a family consisting of eleven were inoculated on August 11, 1894. One out of the *not inoculated* eight was affected with cholera on August 14 and died on August 15.

No case of cholera has occurred among the inoculated.

These observations must be added to those which I had the honour to communicate to the Commissioners in my first Note on the subject in May last.

Assuming even that the vaccines have no lasting effect, but that their temporary protective power is proved beyond doubt by a series of observations similar to those recorded, it is evident that a power is placed in our hands which is simply invaluable to control epidemic cholera.

From this summary of observations, together with those given in May last, it is evident that the number of attacks and deaths in the inoculated have been constantly smaller than in the not inoculated, although to different degrees in different localities. The conclusion to be drawn from this fact is that the effect of the vaccines is to increase the resistance of the inoculated against the disease. The result hitherto obtained justifies the application of the method under every condition, and tends to confirm the view that we have in the inoculations a highly promising measure of defence against cholera. The principle confirmed, the conditions under which the inoculations can be applied so as to obtain the highest amount of benefit from them will be gradually determined, and this can only be done by observations such as those now set forth. In this respect the experience of Gya and Lucknow are most important in showing in what direction modifications are needed in the preparation and administration of the vaccines to secure the best results—first, as regards immediate protection during a prevailing epidemic; and, secondly, as regards protection of a more permanent character.

NOTE ON THE MECCA 'PILGRIMAGE OF 1893.

BY W. S. RICHARDS,

*Her Britannic Majesty's Consul at Jeddah.*¹

LAST year's pilgrim season was in every respect the most remarkable that has ever been witnessed in this country. Owing to the fact that the principal day of the Haj (the 9th Yilhidjé) fell on a Friday, it was confidently anticipated that the number of pilgrims would be very much in excess of the average, but the reality outstripped even the most sanguine predictions. The number of pilgrims landed at Jeddah and Yambo last year was 92,625—i.e., about double the average number; and if the whole

¹ Report by Consul Richards to the Earl of Kimberley.

number of pilgrims be calculated, it was certainly not less than 250,000, while it has been put as high as 300,000 by persons well qualified to form a correct opinion.

The list is headed by British Indians, nearly 15,000 persons; these numbers being, however, nearly equalled by North Africans (Moors, Algerians, Tunisians, and Tripolitans), Javanese (Dutch East Indians), and Egyptians, while the pilgrims of various other nationalities showed in every case a very considerable increase on the usual numbers.

As might have been expected, cholera broke out at Mecca long before the usual time of its appearance, owing to the presence of such vast numbers of human beings crowded together into the narrow Mecca valley, the weather at the same time being more than ordinarily sultry. The epidemic raged furiously so long as the pilgrims remained at Mecca, the daily number of deaths being at one time, even according to the official return, 1,000; and, subsequently, when the pilgrims came down to Jeddah in order to embark for their various destinations, the disease broke out here, and was soon carrying off its victims at the rate of 500 to 600 a day. The total mortality amongst the pilgrims who went to the holy places by sea was even according to the official returns, which are certainly below the mark, 9,577, while among those who went to Mecca by land the number of deaths was even greater, and has been put as high as 15,000. It will be easily understood, therefore, that not only was last year's Haj memorable for the extraordinary number of those who took part in its ceremonies, but the ravages made in their ranks by cholera were also far beyond any previous record. Indeed, to a great extent this may be considered as a case of the ordinary sequence of cause and effect, although undoubtedly the fact that the simoom (or desert wind) was blowing steadily and unintermittently for eleven days during the latter end of May, while the heat during the first ten days in June was unusually intense, contributed not a little to the development of conditions under which the rapid spread of the disease was inevitable.

As regards the nationality of the vessels employed for the conveyance of the pilgrims to and from Jeddah and Yambo, about 45 per cent. of them were under British colours, Egyptian

and Turkish steamers coming next on the list, while the French vessels secured most of the pilgrims bound for the North African ports.

The following is the return of all pilgrims who landed at Jeddah and Yambo during the Haj season of 1893:—

Description.	Number of Pilgrims.
British Indians	14,772
Egyptians	13,361
Mours, Algerians, &c... ..	14,441
Javanese	13,856
Turks and Syrians	8,427
Arabs	2,162
Persians	1,757
Yemenese	6,410
Soudanese	277
Bokharians	4,692
Pilgrims who landed at Yambo	10,018
Pilgrims arrived by coasters, nationality unknown	2,452
Total	92,625

REPORT ON THE LEPERS' HOME, JAMAICA.

BY JUSTIN F. DONOVAN, M.D.,

Medical Attendant.

I HAVE the honour to submit, for the information of His Excellency the Governor, the accompanying Annual Report on the Lepers' Home, Jamacia, for the financial year ended March 31, 1894.

The publication of the Report of the Leprosy Commission to India appeared during the past year, and has been thoroughly and exhaustively criticised in medical circles. That it is an able, comprehensive, and valuable contribution to the literature of leprosy there is no question. Without, therefore, entering into a *résumé* of that Report, which has already been referred to in detail in the very interesting and able Report of the Island Medical Department for the year ended March 31, 1893, it may not be out of place to point out that some of the conclusions arrived at, and the suggestions made by the Commissioners, are in accordance with what the writer had been

endeavouring to establish from *data* furnished, in the first place, by the medical and clinical histories of the cases in this Institution, and secondly from other sources of information applicable to the conditions of life which obtain among our population.

The Commissioners have come to the conclusion that there is no evidence that leprosy in India is transmitted through heredity from parent to child. An analysis of the cases (some hundred and eighty) under observation at this Institution for the past four and a half years has, in the writer's opinion, also confirmed that hypothesis for Jamaica.¹ The Commissioners further hold that, "in a scientific classification of diseases, leprosy must be regarded as contagious and also inoculable, yet the extent to which it is propagated by these means is exceedingly small." This question of the contagiousness of leprosy has given rise from the earliest times and still continues to be a subject of controversy both among medical and lay writers.

In my previous reports I submitted reasons and arguments, as well as negative proofs, which supported the contention that the disease was, at least, capable of being communicated (in some, at present, unknown way) from person to person. The only strong case of communicability of the disease which the writer has been able satisfactorily to establish during the past four years was that of the former cook of the Institution, mention of which was made in last year's report, and, although it cannot be absolutely assumed to be established as a *positive* case of contagion, it is as nearly so as can be.

The clinical evidence afforded by the cases in the "Home," where for a number of years patients suffering from yaws and leprosy were closely associated, is no doubt strong *prima facie* evidence against a measurable contagiousness of the disease, as no conclusive evidence of communication of leprosy to a yaws case has come to the writer's knowledge. There is, however, this reservation to be made, that all the patients were living under very favourable sanitary conditions, and the use of the baths daily was the rule, which circumstances would strongly militate against the probability of contagion. The Commissioners further consider on this question that "the

¹ See Reports for 1891-92 and 1892-93.

danger of leprosy being diffused and spread by contagion is exceedingly small, and the practical importance of contagion is reduced to a minimum, and it becomes the duty of the Reformer to find means to prevent and counteract this disposition."

In support of this contention they adduce a number of reasons. (a) That only a very small proportion, not more than 2 per cent. of persons living with lepers (as attendants, labourers, nurses, &c.) in asylums in India, become affected with the disease. (b) Leprosy does not spread sufficiently among members of a family. (c) The disease very seldom spreads from husband to wife, or *vice versa*. (d) Vaccination has no influence on the spread of the disease. (e) That leprosy is a specific, and to a certain extent an endemic, disease. (f) It is not directly due to any particular food, or any climatic or telluric conditions, or insanitary surroundings *per se*.

The fact that only a very small proportion of leper attendants, some 2 per cent., acquire the disease is not by any means conclusive evidence against the theory of contagion, as nurses to syphilitic patients in hospitals, &c., are not prone to acquire that disease, for the obvious reason that, believing the affection to be contagious, they adopt the necessary precautions against contamination.

The fact that even a small percentage of nurses, &c., in various parts of the world acquire leprosy, presumably by means of contagion, is in itself a strong factor in support of the contention that the disease is communicable from person to person. The second contention, that leprosy does not spread sufficiently among members of a family, is open to question, at least so far as the *data* which this Institution affords, as we find a very considerable proportion of the inmates related and having lived together or having been intimately associated. The facts bearing on the third point, the communication of the disease from husband to wife or *vice versa*, are too few to afford any deduction so far as our *data* go. The last three points referred to under (d), (e), (f) have been strongly insisted on in my former reports as having no correlation to the origin or spread of leprosy.

In my report for 1890 the following paragraph occurs: "The analogy of the transmission of syphilis by vaccination only

strengthens the presumption that leprosy is not propagated by this means, as it would in all probability manifest itself at an early date after vaccination. It is, to say the least of it, straining a hypothesis, to assume that the *materies morbi* of leprosy should lie dormant for so long a period in the system of the child after vaccination as from six to fifteen years. As leprosy is found to be the same in character, course, symptoms, and termination in all places where it prevails endemically, its causation must depend assuredly on one unalterable specific virus." (Report for 1891.)

"Again, it is a well-known fact that within the districts where leprosy is endemic there are villages and hamlets, or even considerable areas, quite exempt from the disease, although they in no respect differ as to climate, soil, water-supply, or in the mode of life of the inhabitants from the places which are the *habitat* of the pestilence." (Report for 1891.)

The practical suggestions of the Commissioners may be referred to under the following: (a) Compulsory or voluntary segregation. (b) Prohibition of the sale of food by lepers. (c) Lepers should be prevented from following such vocations as baker, barber, butcher, cook, &c., &c., and kindred callings which concern the food, drink, and clothing of the people generally."

The Commissioners do not consider that vagrant or indigent lepers scattered about the country (India) are a source of danger ("are probably sources of little or no danger"). They would, however, discourage the crowding of mendicant lepers into large centres of population. The writer has advocated and continues to advocate very strongly the compulsory segregation of this class, as they are, in his opinion, a menace to the public health as being so many possible moving *foci* for disseminating the disease.

In the report for 1892 the following paragraph occurs: "It follows that the organism" (*bacillus lepræ*) "must find an entrance into the body from the outward world, either through the media of food (including water), of air, through some intermediary host (as the mosquito, fly, &c.), or directly or indirectly from some infected person. Such being the case, the advisability of adopting the principle of segregation becomes obvious, as each person affected with leprosy may possibly

become a *focus* for spreading the bacilli or spores (?) in his midst, and if a vagrant leper, the necessity for segregation becomes still more obvious."

The Commissioners are opposed to compulsory segregation for India, and at most recommend a trial of "leper-farms," or colonies, and suggest that the Presidency and other large towns should have asylums provided for lepers. Assuming that the deductions arrived at by the Commissioners on this question of the practical suggestions apply to the Indian Empire, with 280,000,000 of inhabitants and its million and a half square miles, it is doubtful whether we can apply a similar rule to other smaller countries proportionately more densely populated and with greater facilities of intercourse than such an enormous territory offers.

In the report on the "Home" for 1892 a suggestion was made to have a "prohibitive act passed against lepers engaging in any one of the following avocations or pursuits: (a) Baker, barber, butcher, cigar-maker, dairyman, fisherman, washer-woman, water-carrier, or kindred occupations; (b) in the preparation or sale of any article of food or clothing."

APPENDIX.

Case of the cook of Lepers' Home who acquired mixed leprosy in 1891, whilst serving in that capacity.

Patient was for seventeen years working in the Institution; during the greater portion of that time was employed as cook, a couple of the male inmates assisting him in the kitchen, peeling yam, &c. He is the eldest of five children, all alive and healthy. Father died of dropsy, mother of fever. First manifested the prodromal symptoms of the disease about 1891. He has no knowledge that any member of his family, or relative, however distant, has been affected with leprosy. He is married, but has no children.

There is no *positive* evidence as to where and how the cook acquired the disease. Living in a country where leprosy is endemic in some localities, and is disseminated sparsely over most of the island, it is a matter of almost absolute impossibility

to assert in any one case how the germs of the disease are introduced into the system of an individual, whether through the medium of contagion or by the instrumentality of food, water, &c., &c.

The negative evidence is, however, very strong in support of his having acquired the disease at the "Home," for the following reasons: (*a*) He was employed there for over 17 years, spending practically two thirds of that time in the Institution, his hours of work being from 6 a.m. to 6 p.m., in addition sleeping there three nights a week. (*b*) He slept in the labourers' room, which is located between the two male wards, and is only separated from them by a wooden partition. (*c*) He was assisted in the kitchen by two leper inmates.

INDEX

INDEX TO VOL. LIII.

A b d

A.

- "ABDOMINAL SURGERY: A Clinical Manual for Practitioners and Students," by Skene Keith, F.R.C.S., and George E. Keith, M.B., C.M., (Review), 199
- Abscess of the brain and meningitis in enteric fever (M. Jossierand), 367
- Abscess of the liver in children (M. Proust), 365
- Abscess, supra- and sub-diaphragmatic (Prof. J. G. Adami), 288
- Acanthosis nigricans (Mr. Malcolm Morris), 32
- Adami (Prof. J. G.), supra- and sub-diaphragmatic abscess, 288
- Albuminuria, the persistence of, after recovery from nephritis (L. Bard), 368
- Alkaline chalybeate tonic, 377
- Alopecia areata, prescription for, 57
- Aluminium hypodermic case, 376
- Amenorrhoea, senecio in (Dr. William Murrell), 52; the pigmentation of, (Dr. A. Lawrence), 298
- "American Physicians, Transactions of the Association of," vol. viii. (Review), 204
- Anæmia, note on the use of ferratin in (John Harold, L.R.C.P., M.R.C.S.), 87; pernicious, in youth (Dr. Gowers), 121; of children, 129
- Anderson (T. McCall, M.D.), "A Treatise on Diseases of the Skin, with special reference to their Diagnosis and Treatment; including an analysis of 12,000 consecutive cases," (Review), 440
- Antipyretic treatment of acute disease (T. F. Raven, M.R.C.S., L.R.C.P.), 1
- Antiseptics, intestinal, 296
- Antispasmodic and carminative draught, 377
- Antitoxin treatment of diphtheria, 300
- Arsenical poisoning (M. Mathieu), 35

B e w

- Asaprol, (MM. Dujardin-Beaumetz and Staskler), 52
- Ashby (Henry, M.D., F.R.C.P.), on the ætiology of the so-called scurvy-rickets, 412; diagnostic value of desquamation in scarlatina, 452
- Asthma (spasmodic), powder for, 183; prescription, 218
- Auto-intoxication and skin diseases, 47
- "Auto-Intoxication in Disease—or Self-poisoning of the Individual," by Charles Bouchard, translated by Dr. Thomas Oliver (Review), 116

B.

- BACILLUS of bubonic plague (Prof. S. Kitasato), 811
- Bacteriology: "Directions for Laboratory Work in Bacteriology," by Frederick G. Nory, Sc.D. M.D. (Review), 438
- Bakehouses, report on the sanitary condition of metropolitan (Shirley F. Murphy), 387
- Bakehouses and their needs in the metropolis and large towns (Mr. Shirley Murphy), 464
- Ball (James B., M.D., M.R.C.P.), "Handbook of Diseases of the Nose and Pharynx" (Review), 357; chronic lacunar tonsillitis, 418
- Bard (Dr.), the persistence of albuminuria after recovery from nephritis, 368
- Bardet (Dr.), modern hypnotics, 42
- Bauer; idiopathic enlargement of the heart, 51
- Bäumler (Prof.), sulphur in diphtheria, 128
- Becker (Dr. Jonathan), hemin crystals from bloodstains mixed with rust, 53
- Beri-beri, the natural history of, 456
- Bérillon (Dr.), biting of nails, 293
- Bewley (Dr. H. T.), cancrum oris in typhoid fever, 39

Bib

- Bibliography, 58, 135, 219, 303, 378, 468
 Biliary obstruction removed by cholecystotomy and injections of ether (M. Fontan), 367
 Bismuth treatment of gastric ulcer (Savelieff), 460
 Bladder, fibromyoma of the, 209
 Blake (Edward T., M.D., M.R.C.S.), "Myxœdema, Cretinism, and the Goitres, with some of their Relations" (Review), 437
 Blandford (Dr. G. Fielding), the prevention of insanity, 457
 Blennorrhagic urethritis in women (Rollet), 453
 Bone marrow in the treatment of pernicious anæmia (Dr. Fraser), 40
 Boyd (Dr. M. A.), the early myelogenic features of leucocythæmia, 81
 Bright's disease, duodenal ulceration in (Drs. Perry and Shaw), 459
 Bromide eruption (Mr. Jonathan Hutchinson), 290
 Brunton (Dr. T. Lauder) and Mr. Watson Cheyne, intestinal obstruction from chronic appendicitis, 289

C.

- Cactus grandiflorus*: its literature, composition, pharmacology, and therapeutics (Gordon Sharp, M.B.), 161
 Cæsarian sections, multiple (M. Gueniot), 449
 Caffeine in treatment of renal and cardiac disease (M. Pavinsky), 129
 Calcium chloride in pneumonia, 343
 Cancer, the practical outcome of recent researches on (Dr. Herbert Snow), 92; double primary (M. Courmont), 41
 Cancrum oris in typhoid fever (Dr. H. T. Bewley), 39
 Carbo-hydrates, the physiology of the (Dr. Favy), 455
 Cardiac dislocation, extreme (Heyse), 449
 Carselli (Dr.), bromide of strontium in acute gastric catarrh, 130
 Cascara jelly, 56
 Catrin (Dr.), permanganates in diphtheria, 372
 Cerebral apoplexy, the temperature in (Dr. Dana), 213
 Cerebral hæmorrhage, ingravescent, treated by ligature of the common carotid artery (Dr. F. X. Dercum), 362
 Cervico-brachial herpes, with tr oph

Cro

- ulceration, neuralgia, and paresis (John Harold, M.R.C.S., L.R.C.P.), 442
 Chambard (Dr.), chloralose, 213
 Championnière (M.), infectious pericarditis, 215
 Chantemesse (Dr. A.), cholera epidemic at Constantinople, 67
 Charcot, treatment of Ménière's disease, 53
 Chest diseases, strychnine in, 214
 Children ill-nourished, prescription for, 302
 Chloral hydrate in hæmoptysis (J. Pal), 369
 Chloralose (Charles Fleming, M.R.C.S.), 8; (Dr. Chambard), 213; poisoning by (M. Thouvenaint), 55
 Chlorosis in men (Dr. C. F. Martin), 452
 Cholera and Prof. Haffkine's anticholeraic vaccination (Dr. W. J. Simpson), 59; epidemic at Constantinople (Dr. A. Chantemesse), 67; in Europe in 1892, and English cholera administration (R. Thorne-Thorne, C.B., M.B., F.R.S.), 304, 379; and preventive inoculation (W. J. Simpson, M.D.), 467
 Claiborne (Dr. J. H.), quinine amaurosis, 203
 Clarke (Dr. Michell), somnambulism, 371
 Clemow (Frank, M.D., D.P.H.), notes on some past epidemics of plague in Russia, 220
 Clinical Bacteriology: "Grundriss der klinischen Bakteriologie für Aerzte und Studierende," von Dr. Felix Klemperer and Dr. Ernst Levy (Review), 26
 Cocaine injected into the urethra, causing death, 37
 Cocaine pocket spray, 376
 Colchicum poisoning (Dr. H. N. Moyer), 34
 Coley (F. C., M.D.), the drug treatment of phthisis, 271
 Comby (Dr.), hysterical apoplexy with left hemiplegia, 367
 Comby (Dr. J.), rickets, 49
 Condylomata, prescription for, 133
 Constipation, evil effects of, on myopic eyes (George Wherry, M.A., M.C.), 350
 Coryza, eau-de-cologne in, 44
 Courmont (M.), double primary cancer, 41
 Craig (Dr. James), unusual case of Graves's disease, 363
 Crétien (Dr. Ed.), dirotism of the pulse, 55
 Croupous pneumonia, some points in

C r o

- the prognosis and treatment of, (Percy Kidd, M.D., F.R.C.P.), 183
- Croom (Dr. J. Halliday), the value of massage, 460
- Cutaneous gangrene in hysteria (M. Féré), 376
- Curare in epilepsy (M. Dobronravow), 210
- Cysticercus of the skin (Dr. D. Galatti), 290
- Cyst of the cerebellum (Drs. Hughlings Jackson and Risien Russell), 37
- Cystic sarcoma of the uterine mucosa (Dr. Ozeune), 34
- Czerny, disease of the middle ear after removal of the trigeminal nerve, 368

D.

- DALBY (Sir W. B.), Ménière's disease, 212
- Dana (Dr.), the temperature in cerebral apoplexy, 213
- Deanesly (Dr. Edward, B.Sc., F.R.C.S.), operative treatment of ruptured urethra, 17
- Dehio, the slow heart of convalescence, 53
- Dercum (Dr. F. X.), inguavescent cerebral hæmorrhage, treated by ligature of the common carotid artery, 362
- Des Barras (M. Roy), the origin and treatment of tetanus, 362
- Desquamation in scarlatina, diagnostic value of (Dr. Ashby), 452
- Diabetes, hints on the treatment of (Dr. Solomon Solis-Cohen), 294; recent views on diet in (Dr. R. T. Williamson), 369
- Diarrhoea (infantile), complicated by acute nephritis (Robert Turner, M.A., M.B., C.M.), 263
- Diarrhoea and dysentery in relation to the water supply of Melbourne, 232
- Dicrotism of the pulse (Dr. Ed. Crétien), 55
- "Dictionary of Medicine," by various writers, edited by Richard Quain, Bart., M.D., and others (Review), 194
- Diet in diabetes, 369
- Diphtheria, antitoxin treatment of, 300
- Diphtheria mortality, increase in London (John F. J. Sykes, D.Sc., M.D.), 137; permanganates in (Dr. Catrin), 372; (ocular) and its treatment (M. Frenkel), 443; sudden death in, 453
- Disinfection of scarlet fever patients before the completion of desquamation, 14

F e v

- Diuretic mixture, 218
- Dobronravow (M.), curare in epilepsy, 210
- Donovan (Justin F., M.D.), Report on the Lepers' Home, Jamaica, 475
- Duckworth (Sir Dyce), Taches Bleuâtres, 289
- Dujardin-Beaumetz, M.M., and Staskler, asaprol, 52
- Dysentery and contaminated water at the Suffolk County Lunatic Asylum (Dr. George Turner), 238; tropical (Surgeon-General Sir Joseph Fayrer, K.C.S.I., LL.D., M.D., F.R.S.), 241, 321, 401
- Dysmenorrhœa, treatment of, 48

E.

- EAU-DE-COLOGNE in coryza (Roux), 44
- Eccles (A. Symons, M.B.), mechanotherapy in heart diseases, 106
- Eccles (Mr. McAdam), formic aldehyde as a hardening agent, 294
- Eczema in infants (Dr. Marfan), 46; of the legs, prescription for, 133; seborrhœic (Unna), 43; seborrhœicum, prescription for, 134; therapeutic failures in (Dr. Leslie Phillips), 45
- "Edinburgh Hospital Reports," edited by G. A. Gibson, M.D., D.Sc.; C. W. Cathcart, M.A., M.B.; John Thomson, M.D., and D. Berry Hart, M.D. (Review), 438
- Elliot (Dr. J. W.), impacted gall-stone removed from the duct, 365
- Enteric pill (Dr. Louis Waldstein), 460
- Enucleation for goitre (M. Poncet), 53
- Epilepsy, curare in, 210; Jacksonian, complicated case of (Pitres), 40
- Ether, death from (M. Vallas), 367
- Eudlitz, mercury hypodermically in syphilis, 47
- Erysipelas, the heart in facial, 126
- Ewald (Prof.), thyroid feeding, 375
- Eye diseases: "Notes on Nursing in Eye Diseases," by C. S. Jeaffreson, M.D., F.R.C.S.E. (Review), 233

F

- FAYRER (Surgeon-General Sir Joseph) on tropical dysentery, 241, 321, 401
- Féré (M.), cutaneous gangrene in hysteria, 375
- Fever (scarlet) patients, disinfection of, before the completion of desquamation (Dr. William Gibson), 14

Fev

- Fever (typhoid), the heart in (Dr. Huchard), 453
 Fibromyoma of the bladder (M. Vertigoen), 209
 Fisher (Dr. Theodore), adherent pericardium in the child, 373
 Fleming (Charles, M.R.C.S.), chloralose, 8
 Fontan (M.), removal of biliary obstruction by cholecystotomy and injections of ether, 367
 Formic aldehyde as a hardening agent, (Mr. McAdam Eccles), 294
 Frankland (Percy, Ph.D., B.Sc., F.R.S., and Mrs. Percy Frankland), "Micro-Organisms in Water; their Significance, Identification, and Removal" (Review), 279
 Fraser (Dr.), bone marrow in the treatment of pernicious anæmia, 40
 Frenkel (M.), ocular diphtheria and its treatment, 448
 Friedrich's ataxy, two cases of (James Taylor, M.A., M.D., M.R.C.P.), 335
 Friedrich's disease, non-hereditary, (Dr. Hector W. G. Mackenzie), 123

G.

- GALATTI (Dr. D.) cysticercus of the skin, 290
 Gall-stone (impacted), removed from the duct (Dr. J. W. Elliot), 365; stenosis of the duodenum from (Schule), 446
 Galliard (M.), treatment of hepatic colic complicated with pregnancy, 37
 Gangrene of the whole of the right leg following acute rheumatism (Dr. Spiridion Kanellis), 447
 Garjet (M.), iritis and erysipelas, 38
 Gastric ulcer, bismuth treatment of (Savelieff), 461
 Gastroectasis and enteroptosis (Dr. H. C. Tweedy), 122
 Gelli (Dr.), chloroform and chloral hydrate in puerperal eclampsia, 129
 Gibson (Dr. William), disinfection of scarlet fever patients before the completion of desquamation, 14
 Giraudeau (M.), tuberculous disease of the mouth, 207
 Glycerine extract of the kidney substance, injection in albuminuria (M.M. Teissier and Frenkel), 215
 Glycosuria from thyroid feeding (Mr. W. Dale James), 286
 Goitre, enucleation for, 53
 Gonorrhoeal endocardites (H. Richardière), 207
 Goodhart (Dr. J. F.), "On Common

Hep

- Neuroses; or, the Neurotic Element in Disease and its Rational Treatment" (Review), 118
 Gout, piperazina and other eliminants in the treatment of, 265
 Gowers (Dr.), pernicious anæmia in youth, 121
 Graves' disease, pathology of (Dr. Rankin), 264; treatment of (M. Joffroy), 297; thyroidectomy for, 206; unusual case of (Dr. James Craig), 363; thyroid feeding in (M. Marie), 47
 Gregg and Moreland (Drs.), permanganate of potassium in opium poisoning, 122
 Guaiacol, cutaneous absorption of (Drs. G. Linoesier and Lamois), 217
 Guelpa, treatment after tracheotomy, 42
 Gueniot (M.), multiple Cæsarian sections, 449
 Guignabert, tuberculous peritonitis, 126
 Gutta serena, treatment of (Dr. H. S. Pardon), 293

H.

- HÆMIN crystals from bloodstains mixed with rust (Dr. Jonathan Becker), 53
 Hæmoptysis, prescription for, 302
 Hæmorrhagic diathesis; abdominal section; recovery (Dr. Sutton), 30
 Hall (F. De Havilland, M.D., F.R.C.P.), "Diseases of the Nose and Throat" (Review), 202
 Hanot (M.), icterus gravis, 214
 Harold (John, L.R.C.P., M.R.C.S.), note on the use of ferratin in cases of anæmia, 87; a case of cervicobrachial herpes, with trophic ulceration, neuralgia, and paresis, 442; unpleasant effects of phenacetin, 444; tuberculosis and meningitis, 444; myxœdema treated by thyroid gland, 100
 Hartridge (Gustavus, F.R.C.S.), "The Ophthalmoscope: a Manual for Students" (Review), 356
 Hayne (Louis B., B.A., M.B., B.C.), the morbid anatomy of the lungs after influenza, 256
 Heart in facial erysipelas, 126
 Heart, idiopathic enlargement of the, (Bauer), 51
 Hehir (Patrick, M.D., F.R.S.E.), "Hygiene and Sanitary Science, a Catechism of" (Review), 120
 Hepatic colic complicated with pregnancy (M. Galliard), 37

H e r

- Hernia, strangulated (G. E. Wherry, M.C., F.R.C.S.), 179
 Herz (L.), "Weakened Heart," 131
 Heyse, extreme cardiac dislocation, 449
 Hill (Alex, M.A., M.D.), "The Physiologist's Note Book: a Summary of the Present State of Physiological Science" (Review), 24
 Hornus (M.), double orchitis with suppuration, 447
 Hübner, digestive properties of iodic, bromic, and fluoric acids, 52
 Huchard (Dr.), the heart in typhoid fever, 453
 Hutchinson (Mr. Jonathan), bromide eruption, 290; melanosis, 361
 "Hydatid Disease," vol. ii, by John Davies Thomas, M.D., edited by Alfred Austin London (Review), 117
 Hydatid of the brain (Mr. O'Hara), 286
 "Hygiene and Sanitary Science, a Catechism of," by Patrick Hehir, M.D., F.R.S.E. Part I.—"Water" (Review), 120
 Hypnotics, modern (Dr. Bardet), 42
 Hysteria, cutaneous gangrene in, 375
 Hysterical apoplexy with left hemiplegia (Dr. Comby), 867

I.

- ICTERUS gravis (Dr. Hanot), 214
 Impetigo contagiosum, prescription for, 134
 "Indigestion," note on (F. Orton, M.D.), 434
 Influenza, morbid anatomy of the lungs after (Louis B. Hayne, B.A., M.B., B.C.), 256
 Influenza, prophylaxis of (M. Roussy), 373
 Insanity, the prevention of (Dr. G. Fielding Blandford), 457
 Intercoastal neuralgia, prescription for, 302
 Intestinal antiseptics, 296
 Intestinal obstruction from chronic appendicitis (Dr. Lauder Brunton and Mr. Watson Cheyne), 289
 Intertrigo in children, prescription for, 377
 Iodic, bromic, and fluoric acids, digestive properties of (Hübner), 52
 Iritis and erysipelas (M. Garjet), 38

J.

- JACKSON (Dr. Hughlings) and Dr. Risien Russell, cyst of the cerebellum, 37

J a c

- Jacquet, malakin: an anti-rheumatic and antipyretic, 45
 James (Mr. W. Dale), glycosuria from thyroid feeding, 286
 Jamieson (Dr. Allan), lichen pilaris, 449; xanthoma diabeticorum, 447
 Jeaffreson (C.S., M.D., F.R.C.S.E.), "Notes on Nursing in Eye Diseases" (Review), 283
 Joffroy (M.), treatment of Graves's disease, 297
 "Johns Hopkins Hospital Reports, vol. iv. No. 1, Report on Typhoid Fever" (Review), 281
 Jossierand (M.), abscess of the brain and meningitis in enteric fever, 367
 Jullien, a new treatment for syphilis, 375

K.

- KANELIS (Dr. Spiridion), gangrene of the whole of the right leg following acute rheumatism, 447
 Keith, Skene, F.R.C.S., and George E. Keith, M.B., C.M., "Text Book of Abdominal Surgery; a Clinical Manual for Practitioners and Students" (Review), 199
 Kidd (Percy, M.D., F.R.C.P.), some points in the prognosis and treatment of croupous pneumonia, 183
 Kitasato (Professor S.), preliminary notice of the bacillus of bubonic plague, 311
 Klemperer, diagnosis of the different kinds of meningitis, 47
 Klemperer (Dr. Felix) and Dr. Ernst Levy, "Grundriss der klinischen Bakteriologie für Aertze und Studierende" (Review), 26
 Koester (M.), treatment of acute rheumatism by salophene, 130
 Kroenig, pulmonary sequestrum in phthisis, 39

L.

- LACTOPHENIN, 51
 Lævulose in diabetes mellitus (Dr. Hale White), 295
 Lagari, the anti-toxic functions of the liver, 372
 Lannois, post-roseolar disseminated sclerosis, 124
 Laparotomy for tubal pregnancy (Dr. Treub), 38
 Laryngeal symptoms in tabes dorsalis (Dr. Moritz), 451
 Laryngitis, chronic, prescription for, 218

LAW

- Lawrence (Dr. A.), the pigmentation of amenorrhœa, 298
 Lead-palsy in children (Dr. Wharton Sinkler), 366
 Lead-poisoning treated with monosulphate of sodium (Dr. Peyson), 131
 Legond (M.), secondary trephining for fracture of the skull, 209
 Lepers' Home, Jamaica (Justin F. Donovan, M.D.), 475
 Lépine (M.), hæmorrhagic pleurisy, 361
 Lesion in the temporo-sphenoidal region with aphasia, 211
 Letulle (Dr.), palatal ulceration in tabes dorsalis, 291
 Leucocythæmia, the early myelogenic features of (Dr. M. A. Boyd), 81
 Lichen pilaris (Dr. Allan Jamieson), 449
 Lichen, urticatus, prescription for, 302
 Liebig, the pulse curve in diminished atmospheric pressure, 130
 Linossier and Lamois (Drs.), cutaneous absorption of guaiacol, 217
 Liver, the anti-toxic functions of the (Lagari), 372
 "Lunacy Law for Medical Men," by Charles Mercier, M.B. (Review), 439
 "Lunatic Asylums: their Organisation and Management," by Charles Mercier, M.B. (Review), 203
 "Lungs and Pleuræ, Diseases of the, including Consumption," by R. Douglas Powell, M.D., F.R.C.P. (Review), 358
 Lungs after influenza, morbid anatomy of the (Louis B. Hayne, B.A., M.B., B.C.), 256

M.

- MACKENZIE (Dr. Hector W. G.), non-hereditary Friedreich's disease, 123
 Mackenzie (Dr. Stephen), the rational treatment of urticaria, 299
 Malakin, an anti-rheumatic and antipyretic (Jaquet), 45
 Manley (Dr. T. H.), salicylic acid in myalgia, 46
 Mapother (Dr. E. D., F.R.C.S.I.), piprazina and other eliminants in the treatment and prevention of gout, 285
 Marfan (Dr.), eczema in infants, 46
 Marsh (Mr. F.), suppurative otitis media: carotid aneurysm, 88
 Marie (M.), thyroid feeding in Graves' disease, 47
 Martin (M. André), variola and vari-cella, 86

MOR

- Martin (Dr. C. F.), chlorosis in men, 452
 Massage, the value of (Dr. J. Halliday Croom), 460
 Mathie (M.), arsenical poisoning, 35
 Measles, notification of, 148
 Mecca, pilgrimage of, 1893 (W. S. Richards), 478
 Mechano-therapy in heart diseases (A. Symons Eccles, M.B.), 106
 Mediastinitis, anterior, 450
 "Medical Treatment; or, Clinical Therapeutics, a Manual of," by J. Burney Yeo, M.D., F.R.C.P. (Review), 27
 "Medicated Baths in the Treatment of Skin Diseases," by Leslie Phillips, M.D. (Review), 24
 "Medicine, Dictionary of," by various writers, edited by Sir Richard Quain and others (Review), 194
 "Medicine and Therapeutics, the Student's Handbook of," by Alex. Wheeler, L.R.C.P. (Review), 204
 Melanosis (Mr. Jonathan Hutchinson), 361
 Melbourne water supply, diarrhoea and dysentery in relation to, 232
 Membræ tympani, rupture of (Dr. Welsford), 211
 Ménière's disease, treatment of (Charcot), 53; (Sir W. B. Dalby), 212
 Mercier (Charles M. B.), "Lunatic Asylums: their Organisation and Management" (Review), 203; "Lunacy Law for Medical Men" (Review), 439
 Mercury hypodermically in syphilis (Eudlitz), 47
 "Micro-Organisms in Water: their Significance, Identification, and Removal," by Percy Frankland, Ph.D., B.Sc., F.R.S., and Mrs. Percy Frankland (Review), 279
 Middle ear in infants, affections of the (C. Rasch), 127; disease of, after removal of the trigeminal nerve (Czerny), 368
 Meningitis, diagnosis of the different kinds of (Klemperer), 47
 Moir (D. M., M.A., M.B.), chloride of calcium in pneumonia, 343
 Moncorvé (Dr.), feeble physiological respiration on the right side, 54
 Moor (Dr.), antidote to morphine, 43
 Moritz (Dr.), laryngeal symptoms in tabes dorsalis, 451
 Morphine, antidote to (Dr. Moor), 43
 Morphinomania cured by rapid suppression of the drug, 366
 Morris (Mr. Malcolm), acanthosis ni-

M O R

- gricans, 32; "Diseases of the Skin: an Outline of the Principles and Practice of Dermatology" (Review), 358
- Morton (A. Stanford, M.B., F.R.C.S.), "Refraction of the Eye: its Diagnosis and the Correction of its Errors" (Review), 357
- Moyer (Dr. H. N.), colchicum poisoning, 34
- Murphy (Shirley F.), report on the sanitary condition of metropolitan bakehouses, 387; note on the needs of bakehouses in the metropolis and large towns, 464
- Murrell (Dr. William), senecio in amenorrhœa, 52
- Mycosis fungoides (M. Roux), 35
- Myopic eyes, evils of constipation upon, 350
- "Myxœdema, Cretinism, and the Goitres; with some of their Relations," by Edward T. Blake, M.D., M.R.C.S. (Review), 437
- Myxœdema treated by thyroid gland (John Harold, L.R.C.P., M.R.C.S.), 100

N.

- NAIL biting (Dr. Bérillon), 293
- "Neuroses, Common; or, the Neurotic Element in Disease, and its Rational treatment," by Dr. J. F. Goodhart (Review), 118
- Niven (Dr. James), diagnosis of sporadic variola, 295
- Northrup and Crandall (Drs.), scurvy in infants, 48
- Nory (Frederick G., Sc.D., M.D.), "Directions for Laboratory Work in Bacteriology" (Review), 438
- "Nose and Pharynx: Handbook of Diseases of the," by James B. Ball, M.D., M.R.C.P. (Review), 357
- "Nose and Throat, Diseases of," by F. De Havilland Hall, M.D., F.R.C.P. (Review), 202

O.

- ŒDEMA, angio-neurotic (Drs. Ernest Wills and Dudley Cooper), 448
- O'Hara (Mr.), hydatid of the brain, 286
- Oliver (Dr. Thomas), translation of Bouchard's "Auto-Intoxication in Disease—or Self-poisoning of the Individual," 116
- Ophthalmic tabloids (Burroughs and Wellcome), 56

P O Y

- "Ophthalmoscope: A Manual for Students," by Gustavus Hartridge, F.R.C.S. (Review), 356
- Orchitis, double, with suppuration (M. Hornus), 447
- Orton (F., M.D.), note on indigestion, 434
- Otitis media, suppurative: carotid aneurysm (Mr. F. Marsh), 38
- Ovarian cyst following electrical treatment (Rendu), 125
- Ozeune (Dr.), cystic sarcoma of the uterine mucosa, 34

P.

- PAL (J.), hydrate of chloral in hæmoptysis, 369
- Palatal ulceration in tabes dorsalis (Dr. Letulle), 291
- Paralysis agitans sine agitatione (Dr. Fred. Peterson), 290
- Paralysis, pseudo-hypertrophic (Madame Dr. Sacara Tulbase), 54
- Paralysis, pseudo-hypertrophic with contracture, 361
- Paralysis, subacute unilateral bulbar (Dr. Wiener), 291
- Pardon (Dr. H. S.), treatment of gutta serena, 293
- Parker (Charles A.), "Post-nasal Growths" (Review), 285
- Paroxysmal hæmoglobinuria (Mr. Davenport Parry), 31
- Parry (Mr. Davenport), paroxysmal hæmoglobinuria, 31
- Pavinsky (M.), treatment of renal and cardiac disease by caffeine, 129
- Pavy (Dr.), the physiology of the carbohydrates, 455
- Payne (Joseph Frank, M.D., F.R.C.P.), "Seborrhœa and its Consequences" (Review), 279
- Pericarditis, infectious (M. Championnière), 215
- Pericardium (adherent) in the child (Dr. Theodore Fisher), 373
- Peripheral neuritis from tea-drinking (Dr. Spratling), 291
- Permanganates in diphtheria, 372
- Perry (Dr. S. H.), strychnine poisoning followed by acute ascending paralysis, 33
- Perry and Shaw (Drs.), duodenal ulceration in Bright's disease, 459
- Peterson (Dr. Fred), paralysis agitans sine agitatione, 290
- Peyson (Dr.), treatment of lead poisoning with monosulphate of sodium, 131

P h e

- Phenacetin, unpleasant effects of (John Harold, M.R.C.S., L.R.C.P.), 444
 Phillips (Leslie, M.D.), "Medicated Baths in the treatment of Skin Diseases" (Review), 24
 Phillips (Dr. Leslie), therapeutic failures in eczema, 45
 Phthisis, drug treatment of (F. C. Coley, M.D.), 271; pulmonary sequestrum in, 39
 "Physiologist's Note Book: a Summary of the present state of Physiological Science." By Alex. Hill, M.A., M.D. (Review), 24
 Piperazine and other eliminants in the treatment and prevention of gout (Dr. E. D. Mapother, F.R.C.S.I.), 265
 Piperazine, action and uses of (Dr. D. D. Stewart), 42; the value of, 50
 Pitres, complicated case of Jacksonian epilepsy, 40
 Pityriasis capitis, prescription for, 302
 Plague epidemics in Russia (Frank Clemow, M.D., D.P.H.), 220
 Pleurisy, hæmorrhage (M. Lépine), 361
 Pneumonia, chloride of calcium in (D. M. Moir, M.A., M.B.), 343
 Pneumonic endocarditis, 130
 Polypi, two cases of multiple nasopharyngeal (A. Marmaduke Sheild, M.B., F.R.C.S.), 429
 Poncet (M.), enucleation for goitre, 53
 Posner and Lewin, the origin of inflammations in the urinary tract, 454
 "Post-Nasal Growths," by Charles A. Parker (Review), 285
 Potassium permanganate in opium poisoning (Drs. Gregg and Moreland), 122
 Powell (R. Douglas, M.D., F.R.C.P.), "On Diseases of the Lungs and Pleuræ, including Consumption." (Review), 358
 Prescriptions:—
 Alkaline chalybeate tonic, 377
 Alopecia areata, 57
 Antispasmodic and carminative draught, 377
 Application for foul ulcers, 134
 Chronic laryngitis, 218
 Condylomata, 133
 Cooling lotion for pruritus, 57
 Diuretic mixture, 218
 Eczema of the legs, 133
 Eczema seborrhœicum, 134
 Hæmoptysis, 302
 Ill-nourished children, 302
 Impetigo contagiosum, 134
 Intercostal neuralgia, 302
 Intertrigo in children, 377
 Lichen urticatus, 302

R o l

- Pigment for warts, 57
 Pityriasis capitis, 302
 Psoriasis, 218
 Rhubarb draught, 377
 Spasmodic asthma powder, 133
 Spasmodic asthma, 218
 Tape-worm, 133
 Thrush in children, 57
 Urticaria, 218
 Vomiting of pregnancy, 57
 Proust (M.), abscess of the liver in children, 365
 Pruritus, cooling lotion for, 57
 Pruritus pudendi, causes of (Sänger), 299
 Pruritus vulvæ, treatment of, 371
 Psoriasis, prescription for, 218
 Puerperal eclampsia, chloroform and chloral hydrate in (Dr. Gelli), 129
 Pulmonary sequestrum in phthisis (Kroenig), 39
 Pulse curve in diminished atmospheric pressure (Liebig), 130
 Purpura, sulphocarbolates in, 287
 Pustule, malignant, treatment of, 121
 Putnam (Dr.), thyroidectomy for Graves' disease, 206

Q

- QUININE in amaurosis (Dr. J. H. Claiborne), 208

R.

- RANKIN (Dr.), pathology of Graves' disease, 364
 Rasch (C.), affections of the middle ear in infants, 127
 Raubitschek (M.), whooping cough, 214
 Raven (T. F., M.R.C.S., L.R.C.P.), antipyretic treatment of acute disease, 1
 "Refraction of the Eye: its Diagnosis and the Correction of its Errors," by A. Stanford Morton, M.B., F.R.C.S. (Review), 357
 Renal and cardiac disease, caffeine in, 129
 Rendu, ovarian cyst following electrical treatment, 125
 Respiration, feeble physiological, on the right side (Dr. Moncorvé), 54
 Rhubarb draught, 377
 Richardière (H.), gonorrhœal endocarditis, 207
 Richards (W. S.), note on the Mecca pilgrimage of 1893, 473
 Rickets (Dr. J. Comby), 49
 Rollet, blennorrhagic urethritis in women, 453

R o t

- Rothmann, the transitory blindness of uræmia, 459
Rousey (M.), prophylaxis of influenza, 373
Roux (M.), mycosis fungoides, 35; eau-de-Cologne in coryza, 44

S.

- SALICYLIC acid locally in myalgia (Dr. T. H. Manley), 46
Salophene in treatment of acute rheumatism (M. Koester), 180
Sänger, causes of pruritus pudendi, 249
"Sanitary Inspector's Handbook," by Albert Taylor (Review), 119
Sanson (Dr.), sulphocarbolates in purpura, 287
Savelieff, bismuth treatment of gastric ulcer, 460
Scarlet Fever, *see* Fever, Scarlet.
Schüle, stenosis of the duodenum from gall stone, 446
Sclerosis, post-roseolar disseminated (Lannois), 124
Scurvy-rickets, on the ætiology of the so-called (Henry Ashby, M.D., F.R.C.P.), 412
Scurvy in infants (Drs. Northrup and Crandall), 48
"Seborrhœa and its Consequences," by Joseph Frank Payne, M.D., F.R.C.P. (Review), 279
Sharp (Gordon, M.B.), *Cactus grandiflorus*: its literature, composition, pharmacology, and therapeutics, 161
Sheild (A. Marmaduke, M.B., F.R.C.S.), two cases of multiple naso-pharyngeal polypi, 429
Simpson (Dr. W. J.), memorandum on cholera and Prof. Haffkine's anticholeraic vaccination, 59; cholera and preventive inoculation, 467
Singer (G.), auto-intoxication and skin diseases, 47
Sinkler (Dr. Wharton), lead-palsy in children, 366
Skin Diseases: "A Treatise on Diseases of the Skin, with Special Reference to their Diagnosis and Treatment, including an analysis of 12,000 consecutive cases," by T. McCall Anderson, M.D. (Review), 440
"Skin Diseases: an Outline of the Principles and Practice of Dermatology," by Malcolm Morris (Review), 358
Skin diseases and auto-intoxication (G. Singer), 47

T h o

- Slow heart of convalescence (Dehio), 53
Smith (Noble, F.R.C.S.), "Spinal Caries (Spondylitis, or Inflammatory Disease of the Spinal Column)" (Review), 118
Snow (Dr. Herbert), the practical outcome of recent researches on cancer, 92
Solis-Cohen (Dr. Solomon), hints on the treatment of diabetes, 294
Sonnambulism (Dr. Michell Clarke), 371
"Spinal Caries (Spondylitis, or Inflammatory Disease of the Spinal Column)," Noble Smith, F.R.C.S., L.R.C.P. (Review), 118
Sporadic variola, diagnosis of (Dr. James Niven), 295
Spratling (Dr.), peripheral neuritis from tea-drinking, 291
Stewart (Dr. D. D.), action and uses of piperazine, 42
Strontium bromide in acute gastric catarrh (Dr. Carselli), 130
Strychnine in diseases of the chest, 214
Strychnine poisoning followed by acute ascending paralysis (Dr. S. H. Perry), 33
Sulphur in diphtheria (Dr. Bäumlcr), 128
Sulphocarbolates in purpura (Dr. Sanson), 287
Sutton (Dr.), hæmorrhagic diathesis: abdominal section, recovery, 30
Sykes (John F. J.), on the increase of diphtheria mortality in London, 137
Syphilis, a new treatment for (Jullien), 375

T.

- TACHES BLEUÂTRES (Sir Dyce Duckworth), 289
Tape-worm, prescription for, 133
Tassau (Dr.), tuberculous disease of the tonsils, 55
Taylor (Albert), "Sanitary Inspector's Handbook" (Review), 119
Taylor (James, M.A., M.D., M.R.C.P.), two cases of Friedreich's ataxy, 335
Tea tabloids, Burroughs, Wellcome, & Co., 132
Teissier and Frenkel (MM.), injection of glycerine extract of the kidney substance in albuminuria, 215
Tetanus, the origin and treatment of (M. Roy des Barras), 332
Thomas (Dr. John Davies), "Hydatid Disease," vol. ii. (Review), 117
Thorne-Thorne (R., C.B., M.B., F.R.S.) cholera in Europe in 1892, and

T h o

- English cholera administration, 304, 379
 Thouvenaint (M.), poisoning by chloralose, 55
 Throat diseases: "The Pharmacopœia of the Hospital for Diseases of the Throat," fifth edition, edited by F. G. Harvey, F.R.C.S., 356
 Thrush in children, prescription for, 57
 Thyroid feeding (Prof. Ewald), 375
 Thyroidectomy for Graves's disease (Dr. Putnam), 206
 Tonsillitis, chronic lacunar (James B. Ball, M.D., M.R.C.P.), 418
 Tonsils, tuberculous disease of the (Dr. Tassan), 55
 Tracheotomy, treatment after (Guelpa), 42
 Trephining (secondary) for fracture of the skull (M. Legond), 209
 Treub (Dr.), laparotomy for tubal pregnancy, 38
 Tuberculosis and meningitis (John Harold, M.R.C.S., L.R.C.P.), 444
 Tuberculous disease of the mouth (M. Giraudeau), 207
 Tuberculous peritonitis (Guignabert), 126
 Tulbase (Madame Dr. Sacara), pseudo-hypertrophic paralysis, 54
 Tumour of the pancreas (Dr. Osler), 31
 Turner (Dr. George), dysentery and contaminated water at the Suffolk County Lunatic Asylum, 238
 Turner (Robert, M.A., M.B., C.M.), on cases of infantile diarrhœa complicated by acute nephritis, 263; practical points in the treatment of venereal diseases, 426
 Tweedy (Dr. H. C.), gastroectasis and enteroptosis, 122

U.

- ULCERS, application for, 134
 Unna, seborrhœic eczema, 43
 Uræmia, the transitory blindness of, Rothmann), 459
 Urethra, ruptured, operative treatment of (Dr. Edward Deanesly, B.Sc., F.R.C.S.), 17
 Urinary tract, the origin of inflammations in the (Posner and Lewin), 454

Y e o

- Urticaria, prescription for, 218; the rational treatment of (Dr. Stephen Mackenzie), 299

V.

- VALLAS (M.), death from ether, 367
 Variol (Dr.), whooping cough, 44
 Variola and varicella (M. André Martin), 36
 Venereal diseases, practical points in the treatment of (Robert Turner, M.A., M.B., C.M.), 426
 Verticogen (M.), fibromyoma of the bladder, 209
 Vomiting of pregnancy, prescription for, 57

W.

- WALDSTEIN (Dr. Louis), enteric pill, 460
 Warts, a pigment for, 57
 "Weakened Heart," L. Herz, 131
 Wells (Dr. Ernest and Dr. Dudley Cooper), angio-neurotic œdema, 448
 Welsford (Dr.), rupture of membranæ tympani, 211
 Wheeler (Alexander, L.R.C.P.), "The Student's Handbook of Medicine and Therapeutics" (Review), 204
 Wherry (G. E., M.C., F.R.C.S.), notes on the treatment of strangulated hernia, 179; the evil effects of constipation on myopic eyes, 350
 White (Dr. Hale), lævulose in diabetes mellitus, 295
 Whooping cough (Dr. Variol), 44; notification of, 148; M. Raubitschek 214
 Wiener (Dr.), subacute unilateral bulbar paralysis, 291
 Williamson (Dr. R. T.), recent views on diet in diabetes, 369

X.

- XANTHOMA diabeticorum (Dr. Allan Jamieson), 447

Y.

- YEO (Dr. J. Burney, F.R.C.P.), "A Manual of Medical Treatment, or Clinical Therapeutics" (Review), 27

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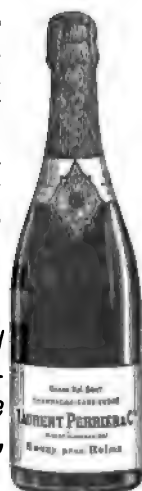
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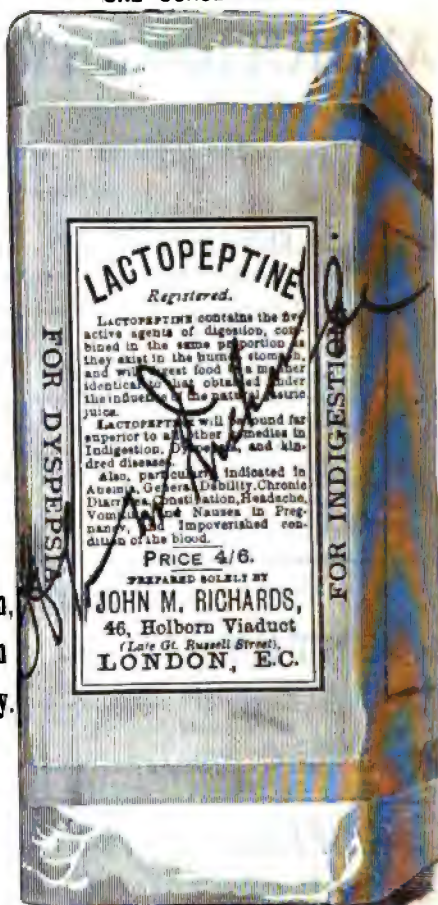
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M.R.C.S., L.R.C.P. 1

CHLORALOSE. By CHARLES FLEMMING, M.R.C.S. 8

ON THE DISINFECTION OF SCARLET FEVER PATIENTS BEFORE THE COMPLETION
OF DESQUAMATION. By WILLIAM GIBSON, M.D. EDIN. 14

THE OPERATIVE TREATMENT OF RUPTURED URETHRA. By EDWARD DEANESLY,
M.D., B.SC. LOND., F.R.C.S. ENG. 17

REVIEWS 24

CLINIC OF THE MONTH 30

EXTRACTS FROM BRITISH AND FOREIGN JOURNALS 42

NOTES AND QUERIES 56

PRESCRIPTIONS 57

BIBLIOGRAPHY 58

DEPARTMENT OF PUBLIC HEALTH:—

MEMORANDUM ON CHOLERA AND PROFESSOR HAFKINE'S ANTI-CHOLERAIC
VACCINATION 59

THE EPIDEMIC OF CHOLERA AT CONSTANTINOPLE IN 1893. By DR. A. CHANTE-
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A JOURNAL OF THERAPEUTICS AND PUBLIC HEALTH

EDITED BY

T. LAUDER BRUNTON, M.D., LL.D., F.R.C.P., F.R.S.

Assistant Physician and Lecturer on Materia Medica and Therapeutics at St. Bartholomew's Hospital

DONALD MAC ALISTER, M.A., M.D., B.Sc., F.R.C.P.

Fellow and Tutor, St. John's College, Cambridge; Physician to Addenbrooke's Hospital; and Lincoln Lecturer of Physic; and

J. MITCHELL BRUCE, M.A., M.D., F.R.C.P.

Physician and Lecturer on Practice of Medicine and Therapeutics at Charing Cross Hospital



CONTENTS

7797.50
Vol. 53

ORIGINAL COMMUNICATIONS:—

THE ANTIPERETIC TREATMENT OF ACUTE DISEASE. BY THOMAS F. RAVEN, M.R.C.S., L.R.C.P.

CHLORALOSE. BY CHARLES FLEMING, M.R.C.S.

ON THE DISINFECTION OF SCARLET FEVER PATIENTS BEFORE THE COMPLETION OF DESQUAMATION. BY WILLIAM GIBSON, M.D. EDIN.

THE OPERATIVE TREATMENT OF RUPTURED URETHRA. BY EDWARD DEANESLY, M.D., B.Sc. LOND., F.R.C.S. ENG.

REVIEWS, CLINIC OF THE MONTH, EXTRACTS FROM BRITISH AND FOREIGN JOURNALS, NOTES AND QUERIES, PRESCRIPTIONS, BIBLIOGRAPHY.

DEPARTMENT OF PUBLIC HEALTH:—

MEMORANDUM ON CHOLERA AND PROFESSOR HAFFKINE'S ANTI-CHOLERAIC VACCINATION.

THE EPIDEMIC OF CHOLERA AT CONSTANTINOPLE IN 1893. BY DR. A. CHANTEMESSE.

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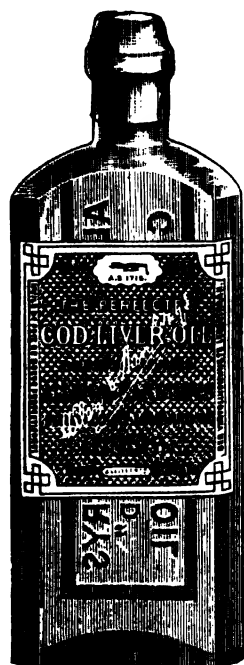
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